Annual Giving Report
2017-18

This is no illusion

Annual Giving Report
2017-18

IITM MISSION

To be an academic institution in dynamic equilibrium with its social, ecological and economic environment, striving continuously for excellence in education, research and technological service to the nation.

IITM VISION

To pursue excellence in:
- *Teaching - developing human resources in the service of the nation*
- *Research*
- *Consultancy*
- *Helping to improve technical education in the country*

I&AR MISSION & VISION

Serve as outward-facing window from the Institute to the Alumni:
- act as primary interface from Institute to alumni-at-large
- authorize alumni access to campus facilities
- administer Distinguished Alumnus Award program
- administer Travel Grant program, etc.

Drive Institute-related fund-raising activities among alumni:
- devise fund-raising strategy
- coordinate fund-raising activities
- ensure timely deployment of funds
- report to Institute and back to donor regarding status of funded projects

Register graduating students into the alumni database:
- enroll students into the database
- provide permanent alumni e-mail ID
- maintain and grow database
- provide database access on as-needed basis

Serve the student community:
- administer scholarships and awards
- solicit alumni funds towards student travel, facilities, projects, etc.
- facilitate student mentoring by alumni

Serve the faculty community:
- promote interactions between visiting faculty and local alumni
- promote campus and department visits by alumni
- promote research & consultancy relationships between faculty & alumni

Serve the alumni community:
- support networking activities and events, such as reunions
- support alumni communications, such as monthly newsletter
- support alumni registration in database
- work closely with IIT Madras Alumni Associations (IITMAA, IITMAANA, etc.) on alumni related matters
- support Pan IIT activities (e.g., Club) and events (e.g. Annual Meets)

Team I&AR

CONTENTS

Dear Alumnus / Alumna,

Just when we thought that the generosity of our alumni and friends hit an all-time high in 2016, we were delighted to find that a new peak has been scaled in 2017! Giving to IIT Madras went up by a stupendous 50%. This is a resounding vote of confidence in the Institute and its faculty and students, and will stir them to aim even higher in their quest for excellence.

We maintained our position as India's top engineering institute in 2017 – for the third year in a row, and without a break since the inception of NIRF rankings. We were also rated overall second among all Indian universities, again for the second time in a row. We received the highest amount of research funding last year and made significant technological contributions to address India's critical needs in electrification, healthcare, water, and port development, among others. Several of our startups made a splash and attracted investors from across the globe. The Research Park, where our startups are housed, is a hub of creativity drawing youngsters like a magnet.

The role of our donors is central in making all of this a reality. The Robert Bosch Centre for Data Science and AI, which has been set up with generous support from Bosch, pitchforks IIT Madras as the leading academic institution in AI research in India. The International Centre for Clean Water has got a big thumbs-up from the H D Parekh Foundation and will be a global go-to place for the latest sustainable technologies in this critical area. Our campus now gets 50% of its water by recycling and 50% of its peak power requirement from roof-top solar panels, the latter made possible by a generous donation from RECL. The Initiative in Biological Systems Engineering, seed-funded by the Mehta Family Foundation, has received a large boost through a donation of stocks, and the construction of an Annex to the CSE Building has been enabled by another sizable gift. I could go on, but I think I have conveyed to you the pivotal role of our donors in our quest for excellence.

As we enter our Diamond Jubilee year, we are closing our very successful Golden Jubilee Fund, and launching an ambitious Diamond Jubilee Fund. Our target is to build an endowment large enough to provide 15-20% of the research budget of the Institute. This will be a significant component of the Institute's investments in new initiatives and futuristic research, and will provide the necessary impetus to take our Institute towards global pre-eminence.

—Prof. Bhaskar Ramamurthi
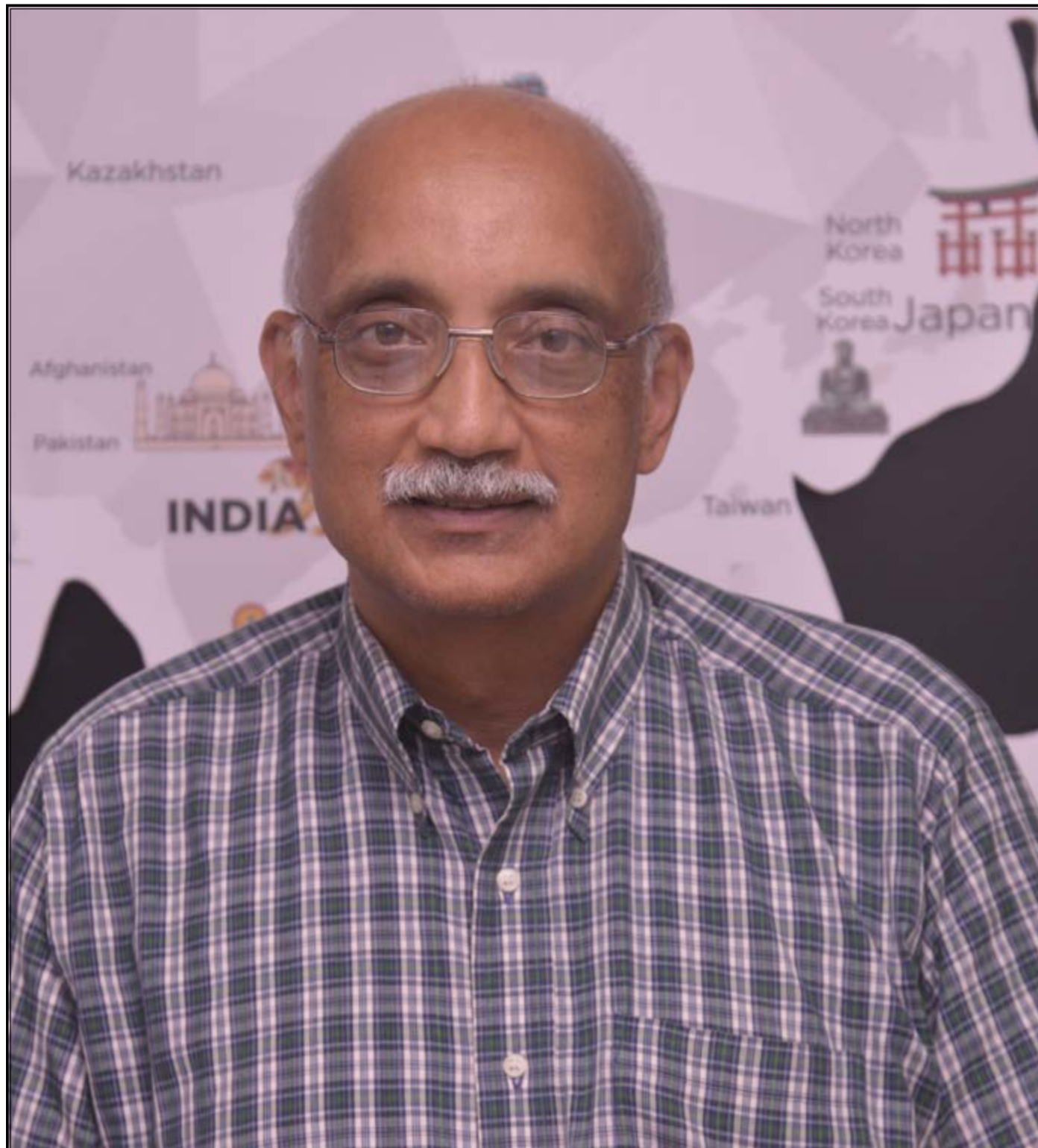
Prof. R. Nagarajan

Dear Alumnus/ Alumna,

You would have heard by now that 2017-18 was an outstanding year for us in terms of fund-raising, with total inflow exceeding Rs. 73 crores, and a record number of new donors coming forward. We have two fund-raising related goals in our "Strategic Plan 2020": to reach a steady-state of Rs. 100 crores per year, and, by 2020, to build a corpus for the Institute of Rs. 500-1,000 crores. While we're on target to meet the first goal, the second is still a little way off. Our current split between Endowment-directed and project-directed contributions is 70% to 30%. Our goal is to get this to 50%-50% by 2020. For this, we need you to give freely to an unrestricted corpus fund where the principal will be untouched (and growing), with only the annual returns being deployed at the discretion of Institute leadership. We believe there is sufficient trust built with our donor community that there will be no hesitation in counting on the Institute to do the right thing all the time.

When you visit our fund-raising websites (https://joyofgiving.alumni.iitm.ac.in/ in India & RoW, https://iitmfoundation.org/ and http://iitmaana.nationbuilder.com/ in the U.S.), do consider the option of giving to the corpus fund. As we close out our "Golden Jubilee Alumni Fund" and launch our "Diamond Jubilee Endowment" on July 31, 2018, we will place increasing focus on building our corpus. From IITM's viewpoint, the flexibility such a corpus offers is a huge enabler for timely interventions and dynamic development.

We have now been crowned 3 years in a row in the NIRF rankings as the best engineering Institution in India. We know we're good, so how come we keep this a closely-guarded secret? Why is that in global rankings where perception/ reputation carries 50% of the weightage, IITB & IITD still do better than us? Especially in "Employer Perception", where alumni in industry ought to be able to exert some positive influence? Is it our natural reticence? Is it the traditional conservatism of the South? Is it our inherent cynicism? Perhaps all of the above, a cumulative effect that precludes us from publicizing?

One common thread in the messages I have been receiving is a query regarding how alumni can help. My response is simple: Start spreading the news. Let your colleague across the hall, the neighbour on your street, know. Brag tastefully, boast tactfully. Let perception catch up with reality.

Alumni have already been huge contributors to IITM's growth & development. The bond between the alma mater and alumni has never been stronger, as evident from the campus & Research Park footfall on a daily basis, and from the number & diversity of alums who attend Chapter meetings in various cities across the world. Alumni entrepreneurs have shaped IITM's innovation/ incubation into a best-of-breed ecosystem, and alumni in academia have helped IITM forge global partnerships that again lead the nation. It is now time for us to focus on how to land the Institute the global recognition & acclaim that it warrants. Please do your share, and do pass on any ideas you may have in this regard.

Let us celebrate our Diamond Jubilee year of 2018-19 as our best yet!

MAJOR CONTRIBUTIONS

Visiting Chairs

Visiting Chairs are intended for visits of 1-3 years by leaders in academia, industry and research with salary & benefits on par with IITM faculty. Campus housing is also provided. The Chair may be endowed with an initial corpus of Rs. 300 lakhs ($ 600,000).

Dr Ajit Singhvi Chair Launch

Amount: Rs. 150.45 Lakhs

Dr Ajit Singhvi Chair in Dept. of Management Studies was launched during Reunion Day (28th Dec), 2017. Sponsored by Dr. Ajit Singhvi, FCA, ACMA (Lon) Ph.D, D. Eng (Lon).

Chair occupant is Dr. C. B. Rao [1974/MT/IE] Founder & Chairman, LeaderCrest Academy Pvt Ltd.

From Dr. C.B. Rao:

Research Interests

Ajit Singhvi Chair in Management Studies has been set up to provide course inputs in the broad areas of business excellence, corporate governance, global business management and technology management, in an integrative framework. Apart from supporting the course objectives, my research interests include competitive strategy and leadership development for Indian industry to attain global competitiveness.

Brief profile

Dr C Bhaktavatsala Rao holds a Ph.D. Degree in Industrial Management and an M. Tech. Degree in Industrial Engineering, both from the Indian Institute of Technology, Madras, Chennai, and a B.E. Degree in Mechanical Engineering from Sri Venkateswara University, Tirupati.

Dr CB Rao has over forty-three years of diversified experience in strategic and operational leadership of large reputed companies, including global MNCs, in India. His previous assignment was as Managing Director/Executive Chairman of Hospital India, a Pfizer Company. A business leader with deep roots in pharmaceutical and automobile industries, and a strong grasp over all functional domains, he has undertaken several growth-driving and value-building initiatives for the companies he was associated with.

Dr CB Rao is a prolific writer with over 130 publications in economic and business dailies and refereed journals, two of which had been Times Research Foundation Awards for two years. He runs his management blog under the name Strategy Musings at cbrao2008.blogspot.com.

The LeaderCrest Academy was established by Dr CB Rao to leverage his knowledge and experience for leadership development, competitive strategy and corporate governance for business and industrial excellence. Over the last 18 months, Dr CB Rao has published under the LeaderCrest banner 5 books to support LeaderCrest objectives in learning and development domain:

– *From Start-up to Ramp-up: Indian Context and Global Insights*

– *Technology and Competitive Strategy: Strategies for Innovators, Differentiators and Followers*

– *Competitive Strategy: A Contemporary Retake*

– *Leadership for India Inc: An Experiential Treatise, and*

– *India as Global Start-up Hub: Mission with Passion*

Dr C B Rao is currently Ajit Singhvi Chair Professor in Management Studies at the Indian Institute of Technology Madras, Chennai.

Adjunct Chair

The Adjunct Chair is intended for short-term visits (less than one year) by leaders in academia, industry and research. An honorarium (covering travel & living expenses) is provided based on services offered. Campus accommodations is also provided. The Chair may be endowed with an initial corpus of Rs. 50-250 lakhs ($ 100,000- 500,000).

Sant Rajinder Singh Ji Maharaj - Adjunct Chair has been sponsored by Sant Rajinder Singh Ji Maharaj

[1967/BT/EE]

Institute Chairs

Institute Chairs are intended for senior IIT Madras Professors to reward exceptional performance. Selected faculty will be identified as "(Named) Institute Chair" until retirement; financial benefits will be provided for an initial period. The Chair may be endowed with an initial corpus of Rs. 65 lakhs ($ 100,000) and will be named by IITM in consultation with the Donor.

Deepak S Parekh Institute Chair in the Department of Chemistry

Amount: Rs. 50.00 Lakhs

Deepak S Parekh Institute Chair was launched on Apr 12th,2017. The Chair has been endowed by a 1981 batch alumnus and the Occupant of the Chair is Prof. T Pradeep, Chemistry Department.

Ace Micromatic Chair launch

Amount: Rs. 50.00 Lakhs

Ace Micromatic Chair Professorship in Dept. of Mechanical Engineering was launched during Alumnite (July 22,2017) . Sponsored By Ace Micromatic Group (AMG)

CSR at IIT Madras

Business houses from different parts of the country have come forward as partners to support socially relevant projects at IIT Madras using their Corporate Social Responsibility (CSR) budget.

Company Name	Cause
ABB India Limited	Micro grid systems for village electrification
	Center of Battery Engineering (CBE)
American Express Services India	IIT Madras Incubation Cell
Aricent Technologies (Holdings) Limited	National Program on Technology Enhanced Learning (NPTEL)
Asirvad Development Foundation	IIT Madras Incubation Cell
Banca Sella S.P.A. Chennai Branch (IT Division)	Merit-cum-Means Scholarship
CAMS Pvt Ltd	Project for Training Small Scale Entrepreneurs
Cholamandalam Investment and Finance Company Limited	Integrated Urban Governance in Metropolitan Chennai
Cholamandalam Ms General Insurance Co. Ltd	Merit-cum-Means Scholarship
	Bharathi scripts project
	Identifying hotspots of environmental pollution
City Union Bank Limited	Development of open source platforms and capability creation initiative at RISE
Easun - MR Tap Changers (P) Ltd.	Study of on load tap changes in power transmission network
E-Care India Pvt Ltd	Merit-cum-Means Scholarship
Engineers INDIA LIMITED	EngSUI Project: Prototype device to capture water from Atmosphere
Fullerton India Credit Co. Ltd	To develop Prototype on smart door lock for helping physically challenged people
HFCL SOCIAL SERVICES SOCIETY	HFCL Scholarship
HT Parekh foundation	International Centre for Clean Water research
ICICI Securities Limited	VCPE Report
Indian Additives Limited	Sustainable Waste Management and Resource Recovery for the Healthy & Clean Villa

Company Name	Cause
L&T Technology Services Limited	Centre for Rehabilitation Engineering and Assistive Technology (CREATE)
	Enhanced Traffic Mobility Using Signal Improvements
Mahindra & Mahindra Limited	Center of Battery Engineering (CBE)
Natesan Synchrocones Pvt Ltd	Natesans Summer Scholar program
Nile Ltd	Merit-Cum-Means Scholarship Endowment
Nokia Solutions & Networks India Pvt. Ltd.	Design and Development of cost effective wireless broadband solutions for Rural
R.K.Industries	Merit-cum-Means Scholarship
Robert Bosch Engineering and Business Solutions Private Limited	Robert Bosch Centre for Data Science and AI
Rural Electrification Corporation Limited (A Government of India Enterprise) (A 'Navratna' CPSE under Ministry of Power)	Rooftop Solar Power Project In IITMadras
Saipem India projects	Implementation of Solar DC Inverterless System in homes and school
Livpure Foundation	Livpure Foundation-Xprize water Abundance program
Shakthi Sustainable Energy Foundation	Implementation roadmap for sustainable urban freight mobility in Chennai
SUPER AUTO FORGE PVT LTD	Breast Cancer Detection Using Thermal Imaging
Tamil Nadu Newsprint and Papers Limited	Bring proficiency in English to slum and rural School Children
	Capacity building of producer companies for better management practices and sust
	Empowering and developing women entrepreneurs : exploring the avenues
Technip Solutions	Sustainable Waste Management and Resource Recovery for the Healthy & Clean Villa
Tek Travels Pvt Ltd	IIT Madras Incubation Cell
The Nature Conservancy Centre	Sembakkam Lake Restoration Project
TITAN COMPANY	Technology Incubators and Research
TMI India	General Fund
TTK Prestige Limited	TTK Centre for Rehabilitation Research and Device Development (R2D2)
United Way Chennai	Tree Plantation in IITM Campus
Virtusa Polaris	Carbon Zero Challenge

Rural Electrification Corp. Limited (RECL) has extended financial assistance of Rs 1,450 lakhs under their Corporate Social Responsibility initiative to IIT Madras for the installation of a 2 MW rooftop solar panel in its academic zone and hostel building.

RECL and IIT Madras entered into a Memorandum of Agreement for this purpose. S. Jayanthi, Chief Project Manager, RECL, and Krishnan Balasubramanian, Professor and Dean, Industrial Consultancy and Sponsored Research at IIT Madras signed the MoA in the presence of other senior officials of REC and IIT Madras including David Koilpillai, Professor and Dean Planning, and R. Nagarajan, Professor and Dean, International and Alumni Relations.

The main objective of the project is to generate power in order to reduce peak demand from the grid on campus and to reduce the carbon footprint and dependency on non-renewable energy sources. The energy generated by the solar panels will go to a centralised grid from where it will be distributed across campus.

"IIT Madras already has 1.1 MW solar panels installed on the Campus rooftops. This will further help in reducing our dependency on conventional sources of energy. We are thankful to RECL for sponsoring a large size project of this nature and funding it through their CSR channel," said Prof. Balasubramanian.

Merit-cum-Means Scholarship

About this cause

Till 2015, the tuition fee for a student was Rs.90,000/- per annum, which the Merit-Cum Scholarship fully supported.

From 2016, the tuition fee has been revised to Rs.2 lakhs per annum. The Government's Merit-Cum Scholarship has been revised to 2/3rd of Rs.2 lakhs (ie 1.33 Lakhs). This leaves a sum of Rs. 66,667/- to be borne by the student.

A total number of 100+ students, around 66 from the 2016 batch and 36 from the 2017 batch benefitted from the MCM scholarship.

Eligibility Criteria for scholarship

Parental income should be less than 5 Lakhs per annum

B.Tech/ Dual Degree

We have received 19 Endowments

How the money will be used

Rs.70,000/- will support one student/year to pay the tuition fees.

We received 19 Endowments. An endowment of Rs.15 lakhs is proposed for supporting each student, assuming an average yield of 5% interest. The returns of the endowment will help in supporting 1 student's annual tuition fee of Rs.70, 000/- as the Merit-Cum-Means Scholarship.

We also received generous contributions from our alumni and various industries to support this scholarship.

Choksi Jugal [EE16B006]

Thank you very much for providing the scholarship. It is very helpful. You are doing a very noble cause helping students. Thank You!

Anshul Suryan [EE16B130]

I am very thankful to you for this. This is a huge help for me. I hope you will continue to give such donations in future also to help students like me.

Hridaya Saboo (MM16B106)

Heartily thanks to the estemmed donar for the scholarship. I feel the financial assistance is a factor which boost our confidence level and always motivates to work hard.

Message from Itkyal Vaibhavi Sanjeet (BS16B018)

I received the cheque. A very big thank you for helping students like me. Thanks for your generous support

Gopalakrishnan–Deshpande Centre

The Center for Innovation & Entrepreneurship

It is widely recognized that fostering a culture of innovation and sponsorship within learning institutions, is vital for India to overcome her developmental challenges, and for her burgeoning youth to fulfill their dreams. As a leading technology institution of the country, IIT Madras started building its innovation and entrepreneurship ecosystem very early in the new millennium. Today, the Institute's Incubation Cell, and tinkering lab, called Centre for Innovation, which nurtures the 'can-do' spirit in the students, are considered role models for replication across the country.

The Gopalakrishnan–Deshpande Center (GDC) @ IITM has been conceived to provide the thought leadership, support systems and processes that will help entrepreneurial and innovative thinking pervading a wide swathe of activities, ranging from teaching to research to product development to policy-making. The Centre will catalyze out-of-the-box solutions from the Institute's labs as well as from fertile young minds, so as to create significant economic and social impact at a national and, eventually, a global scale. The focus of the Centre will be on nurturing select new ideas and approaches that promise non-linear impact and establish new pathways for solving grand challenges. In other words, the focus is on excellence leading to scale, and not on direct broad-based outreach.

The Centre will:

- Pick two or three entrepreneurial and innovative initiatives every year, and perform the role of an Angel Investor (in time, energy and funds). Every program the Center seeds, if successful, will ultimately stand on its own. The Center will not have a role in the particular program after the program is up and running. The main role and value of the Center is to pick and choose the right programs to support, mentor and fund. As more and more programs become successful, patterns will emerge, and slowly they will get adopted as a part of the mainstream activity of IITM.

- Enable the programs it supports to raise further funding orders-of-magnitude higher than the seed funding provided by the Center.

- Participate in the Deshpande Innovation Network of Centers, and share the learnings from other institutions also focused on entrepreneurship. The Center will benchmark itself against other models of innovation, such as at MIT (Figure 2) and strengthen its offerings. It will also be part of a robust network of over 100 institutions that are part of the annual Deshpande Symposium for Innovation and Entrepreneurship. The Center should become known for its thought leadership in these areas.

The Center has a broader canvas than merely encouraging entrepreneurship and startups in the conventional sense. Towards achieving the above objectives, the Center will

- Create enabling mechanisms to get faculty to become more entrepreneurial in their teaching and in their research

- Seed new courses that relate to the I & E ecosystem, and contribute to strengthening it

- Shed light on the challenges facing India, and facilitate analyses to identify the kind of innovations that might result in transformational breakthroughs

- Work with other parts of the I&E ecosystem at IITM to setup technology challenges and other innovative programs to catalyze the innovation culture

- Encourage cross-campus, interdisciplinary collaborations regarding I&E

- Support translational activities to accelerate ideas to implementation

- Coordinate overall branding, marketing and communication of the I&E Ecosystem

- Evangelize support for innovation/ research initiatives with translation and commercialization potential

- Build a leadership program, with entrenched values and culture, to promote entrepreneurial thinking.

A Board consisting of at least one representative from each of the donors, one representative of the Institute Director, and one representative of the Center will govern the Center. The Board will review the working objectives, use of funds and a dashboard of key metrics for the Center's performance. Quarterly reviews will ensure that progress is steady and course corrections immediate.

A Steering Committee, consisting of Kris Gopalakrishnan, Deshpande, Bhaskar Ramamurthi (Director-IIT Madras) and Ashok Jhunjhunwala (Faculty-in-charge, IITM Research Park & Incubation Cell), will provide strategic direction to the Center.

HT Parekh Clean Water Centre

The International Centre for Clean Water (ICCW) aims to be one of the best ecosystems of its kind in the world to ideate, nurture and translate disruptive technologies for sustainable clean water, with collective participation of the global community, delivering first rate science, leading to wealth and social good simultaneously, in the process building water professionals of tomorrow.

Governing Structure

- To be a society
- Director, Professor in-charge or coordinator
- Deputy Director or Coordinator

The centre, occupying a total floor space of 21,000 sq.ft. will be housed at the IITM Research Park which has inherent research facilities, collaborative opportunities, and incubation services.

Advisory Board

- Academicians – National & International
- Stockholm water prize awardees
- Nobel laureates, Industry leaders
- Representatives of Govt., Industry, NGOs, etc.

Objectives

Development of

- an integrated water technology business capable of delivering water technology solutions with IP protection.
- affordable solutions for fluoride-free drinking water
- sensors for remote monitoring of water quality
- solar power driven high efficiency atmospheric humidity capture devices using nanotechnology for production of clean drinking water.
- low energy water desalination units using new technologies
- geo-specific of water purifier bodies for use during natural calamities

Major Partner Benefits

- Early advantage of technologies developed at the centre
- Involvement in setting the research and technology directions for the centre
- Sponsoring MS/PhD students
- Opportunity to engage with government and stakeholders, evolve policy.

Value Proposition for the Donor

- Co-naming rights of the center
- Membership in the advisory board of the center
- Oversight of the agenda for research and technology development
- Consortium membership—as and when it is initiated
- Support on training and development of resources to partner organization

MoU with S Shankar

MoU with RBEI

Subramonian Shankar [1971/BT/EE], Distinguished Alumnus of IIT Madras, has sponsored the expansion of the building which houses the Computer Science and Engineering Department, through the construction of a dedicated building to facilitate future activities and growth of the Department. In return for the funding, IIT Madras will offer Shankar Naming Rights for the new building.

The expansion will provide state-of-the-art facilities for the students and faculty of the Department. The proposed Building will occupy 35,000 sq ft. floor space spread across three floors.

The department currently has around 30 faculty members and is expected to grow to 40 in the next 5 years. Presently, there are 200 research scholars in the M.S. (By Research) and Ph.D. programs, and this number is expected to grow to around 250 in the next 5 years. The project will be launched with approval from the Board of Directors of the Foundation.

The approximate cost of construction including the fitment is estimated to be about Rs. 15 crores. An amount of Rs. 10 crores (in US $ equivalent of $ 1.55M) will be contributed by Shankar on a milestone basis.

As a thank you gesture, Indian Institute of Technology Madras will name, in perpetuity, the new computer Science and Engineering Annexe Building with a name to be designated by Shankar.

Robert Bosch Engineering and Business Solutions (RBEI) signed a Memorandum of Understanding with the Indian Institute of Technology Madras to set up the Robert Bosch Centre for Data Science and Artificial Intelligence (RBC-DSAI).

The mission of the RBC-DSAI is to create societal impact through multidisciplinary interactions with government, academia, research and industrial collaborators on core challenges in Data Science and Artificial Intelligence. The Centre will receive Rs 3 crore - Rs 4 crore funding per year for five years.

Vijay Ratnaparkhe, MD, Robert Bosch, said, "This partnership is to accelerate research for societal impact, taking a long-term view. It will set a precedent in the way big-data is used to improve our problem solving capability in industry. At the same time, the collaboration will result in shared outcomes for the benefit of society."

Bhaskar Ramamurthi, Director, IIT-M said, "IIT-Madras has been nurturing its interdisciplinary data sciences and artificial intelligence research group for more than three years now. The launch of this centre in partnership with, and generous support from, RBEI is an affirmation of the rapid growth and impact of the group's research and teaching activities. I am confident that the RBC-DSAI will become a globally acknowledged centre working at the cutting edge of various aspects of machine learning, data science and artificial intelligence, leading to work with high social impact."

The Robert Bosch Centre will undertake foundational research in many areas of AI and data science — deep learning, reinforcement learning, network analytics, interpretable machine learning, and domain aware AI. The areas of activity include research projects, knowledge management and dissemination, developing prototypes, outreach projects and setting up collaborative facilities and laboratories among others. The centre's mandate requires interaction with industry and other universities, including international student and faculty exchanges. The objective is to advance scientific innovation for societal benefit.

As part of Bosch's research and innovation portfolio in India, the centre in IIT-M will become part of a network to support 'Digital India.' It will advance the country in the fields of innovation and research as the world moves towards more connected hardware and software products.

This research network also includes the Robert Bosch Centre for Cyber Physical Systems at the Indian Institute of Science, Bangalore.

UK Alumni Fundraising

Crowd Funding

IIT Madras has come to an agreement with IIT UK charitable organisation to allow alumni to make donations through the IIT UK bank account and thereby avail tax exemptions. The easiest and simplest method being through Payroll giving—https://payrollgivingportal.uk/

Using payroll deductions also means the UK government's Gift Aid of 25% gets added to the alumni's generous contributions.

A campaign is being rolled out to raise an IITM UK alumni endowment. These contributions will generate an annual interest that will be used to fund student travel to the UK for either a semester abroad, an internship, or to participate in a competition. Alumni settled in the UK are cognizant about how invaluable this exposure will be for young students.
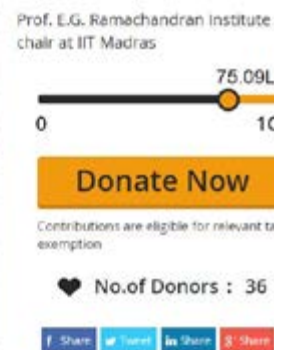
Indian Institute of Technology Madras launched a new fundraising platform, Joy of Giving (https://joyofgiving.alumni.iitm.ac.in/) during Alumnite(July 22, 2017), for raising funds for endowment and projects through alumni and corporations from around the globe, the 'Joy of Giving to IITM' initiative is intended to aid IIT Madras' journey towards global distinction in the fields of engineering education and research.
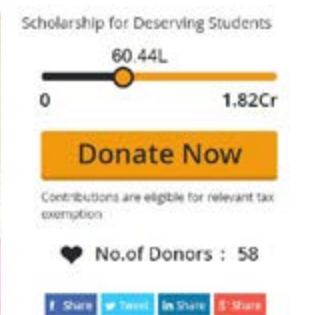
Crowd funding is a new initiative of IIT-Madras, which has brought in Rs 1 crore in retail funds. Around 250 new donors have joined the initiative with the average donation size being Rs. 35,000. Tree plantation, Institute Chairs, MCM scholarship are few of the most successful campaigns.

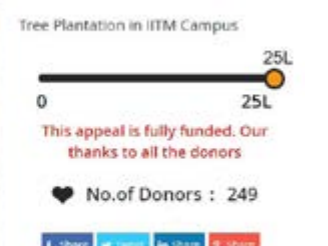Currently, the site has around 100 appeals actively running...

Prof. E.G. Ramachandran Institute chair at IIT Madras

Prof. E.G. Ramachandran Institute chair at IIT Madras

75.09L

0   10

Donate Now

Contributions are eligible for relevant to exemption

No.of Donors : 36

Scholarship for Deserving Students in IITM

Support Deserving Students With Their IIT Dreams

Scholarship for Deserving Students

60.44L

0   1.82Cr

Donate Now

Contributions are eligible for relevant tax exemption

No.of Donors : 58

Tree Plantation in IITM Campus

Tree Plantation in IITM Campus

25L

0   25L

This appeal is fully funded. Our thanks to all the donors

No.of Donors : 249

Great opportunity to be a part of greening of IITM campus

# The Initiative for Biological Systems Engineering (IBSE)

For the first time, we received a contribution in form of stocks from one of our donors, Mr. Prakash Arunachalam.

Mr. Prakash Arunachalam has evinced interest in supporting an interdisciplinary research facility-**The Initiative for Biological Systems Engineering** (IBSE). He has proposed setting up a named Endowment with a cumulative principal of Rs. 6.5 crores, which he will contribute over a four-year period in the form of stocks. We have received Rs.1.93 Cr in the year 2017-18.

About IBSE:

The Initiative for Biological Systems Engineering is an interdisciplinary group dedicated to pioneering innovative approaches and algorithms that integrate multi-dimensional data across scales, to understand, predict and manipulate complex biological systems. In so doing, IBSE aims not only to advance fundamental understanding of cells and their interactions as populations forming complex organs but also to empower personalized medicine.

From its conception during 2015 by Ashok Venkitaraman (University of Cambridge; Mehta Family Foundation Visiting Professor at IIT-M), Prof.Bhaskar Ramamurthi (Director, IIT-M) and colleagues, the IBSE has rapidly grown into a key element of the Robert Bosch Center for Data Analytics at IIT-M. The IBSE has assembled a powerful group of talented faculty, both from within IIT-M and by external recruitment, spanning several key research themes, and has attracted both undergraduate and postgraduate students from engineering and science backgrounds.
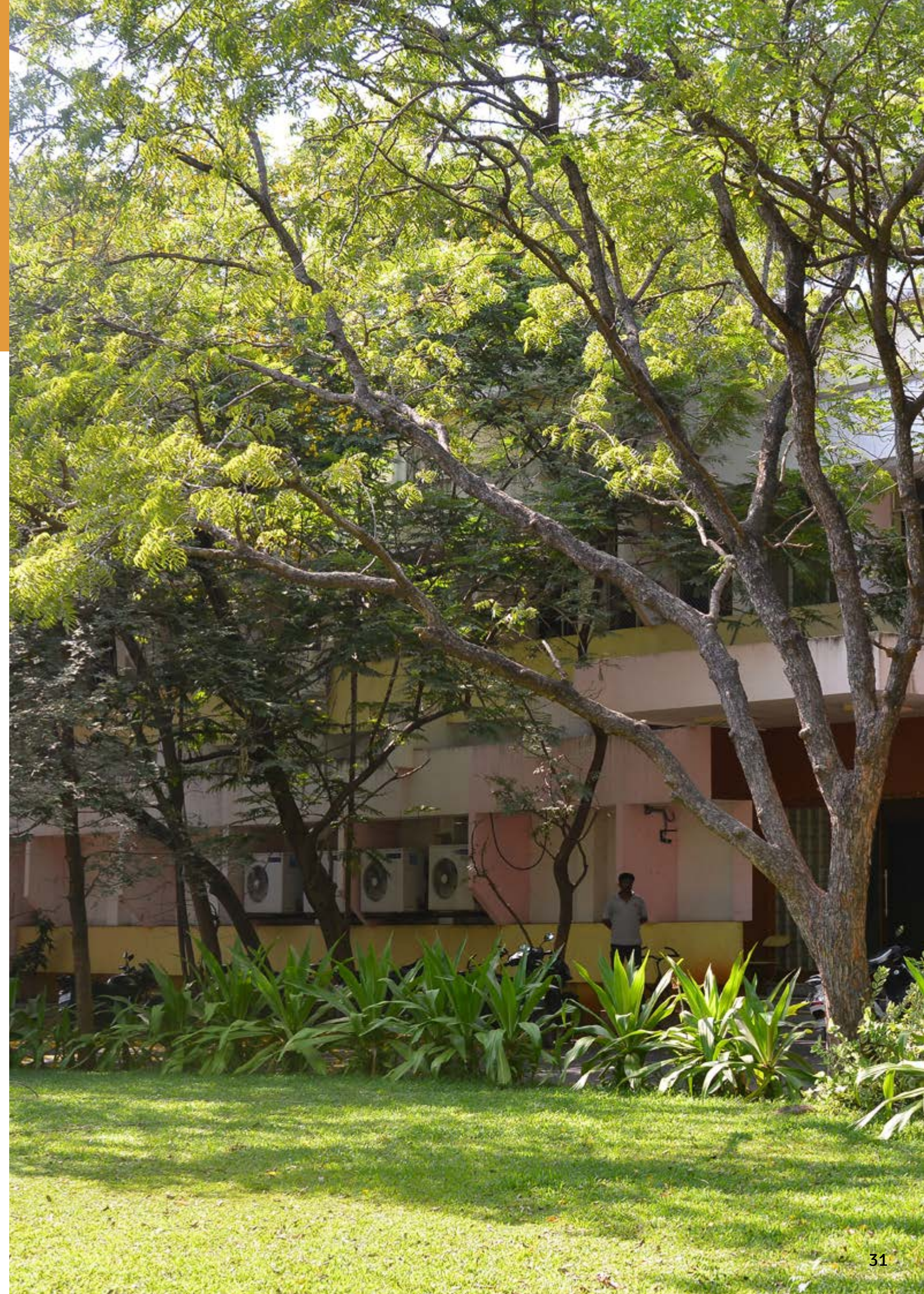
MISCELLANEOUS

Distinguished Alumni Awards

34

Star Donors

82

Leadership Lecture Series

88

Travel Grant

95

SSAN Education Loan

107

Awards and Scholarships

108

Distinguished Alumni Awards

The Distinguished Alumnus Award (DAA) is the highest award given to its alumni by IIT Madras, in recognition of achievements of exceptional merit and excellence. The DAs are awarded in recognition of outstanding achievements in the areas of entrepreneurship, leadership and management, academia, social and technological innovation, and service to humanity at large.

In 2017, 12 Distinguished Alumni were awarded.

Dr. Anand Raghunathan

[1992 / BT / EE]

Professor—School of Electrical & Computer Engineering
Purdue University, Indiana, USA

Prof. Anand Raghunathan received his Bachelor's degree in Electrical and Electronics Engineering from IIT Madras in 1992, and M.A. and Ph.D. degrees in Electrical Engineering from Princeton University in 1994 and 1997, respectively.

Dr. Raghunathan is currently a Professor in the School of Electrical and Computer Engineering, Purdue University, and directs research in the Integrated Systems Laboratory. Dr. Raghunathan is also the C.R. Muthukrishnan Distinguished Chair Professor (Visiting) at the Centre for Computational Brain Research at IIT Madras. Previously, he was a Senior Research Staff Member at NEC Laboratories in Princeton, New Jersey. He received "Patent of the Year Award" (an award recognizing the invention that has achieved the highest impact), and two Technology Commercialization Award from NEC.

Prof. Raghunathan has authored a book, 9 book chapters, and more than 230 refereed journal and conference papers (with 8 best paper awards and a most-cited paper award) in top-tier IEEE and ACM journals, and holds 22 issued patents. He was honoured among the top-10 authors over the first fifty years of the ACM/IEEE Design Automation Conference, and his paper was among the 10 most-downloaded from the entire ACM Digital Library (across all conferences/journals) in 2004. He was chosen by MIT's Technology Review among the TR35 (top 35 innovators under 35 years, across various disciplines of science and technology) in 2006, for his work on "making mobile secure".

Dr. Raghunathan has been a member of the technical program and organizing committees of several leading conferences and workshops. He has served as Technical Program Chair for four premier conferences and on the Editorial Board of seven top-tier IEEE and ACM journals. His sterling work has resulted in manifold forms of awards and accolades including the IEEE Meritorious Service Award (2001) and Outstanding Service Award (2004). He is a Fellow of the IEEE and was elected a Golden Core Member of the IEEE Computer Society in 2001, in recognition of his contributions.

For his praiseworthy commitment to excellence in innovative and impactful research, IIT Madras and its alumni are proud to bestow this award upon Prof. Anand Raghunathan.

Have you ever wondered how the human brain works? Have you ever thought of the difficulties in mimicking it, or wondered what lies beyond the current generation of deep learning and artificial intelligence? Have you questioned the limits of the seemingly ever-evolving computer technology? Have you ever wondered how your online transactions are safe from the untrusted apps on your phone? Meet Dr. Anand Raghunathan, an alumnus of IIT-M (batch of 1992, Electrical Engineering), who has attempted to solve these varied intriguing puzzles. Having been recognized with MITs TR35 award in 2006, Dr. Raghunathan, who is currently a Professor and Chair of the VLSI area in the School of Electrical and Computer Engineering at Purdue University, recently received the Distinguished Alumni Award. He is also a recipient of eight best paper awards, a patent of the year award, the IEEE Meritorious Service Award (2001) and Outstanding Service Award (2004). He is a Fellow of the IEEE. In his interview to Chennai 36, he talks about the past, present and future of Electrical and Computer Engineering, his academic and hostel life at IITM, the mess food of the 90s and how insti changed his life.

What has insti taught you or made you learn?

More than I can say or even recall at short notice. If I were to pick a few, they would be the value of working hard, trying to enjoy what you do, and appreciating and learning from smart people around you. Academically, my first year was pretty rough. I knew that I was going to study with the top brains in the country but it didn't sink in until I went through my first semester. It was much more challenging than it was in school and this realization sunk in during my first year. Staying away from home, being more responsible and independent were also things I had to learn. From the second year onwards, things were much better. We started getting into branch subjects and fortunately, despite being in one of the most challenging branches in the institute at that time, I liked what I was studying for the most part.

Did your time in insti change your perspective of life? How did it help you later on in your life?

My time at IITM taught me adaptability. I was a typical sheltered kid who had been provided countless privileges so that I could focus on education. I had eaten only home food throughout my life. The hostel food was an interesting change. We used to joke that the chapattis were waste products from CLRI, which is right across the campus. However, these experiences taught us many valuable things. They were important life lessons in survival and adaptability.

Also, being around so many smart people, interacting with them and seeing how they approached everything - classes, exams, challenges and life in general - taught me a lot. While the academic foundations laid here were valuable, the meta-learning was equally if not more useful. The degree of freedom I experienced at IIT was much greater than I had experienced before and that was liberating. It helped me grow both as an individual and as an engineer. It also changed my perspective in that I understood the need for the freedom to think and question.

Can you share any memorable incident that happened during your time in insti?

There are quite a few, most of which took place in the hostel or with friends. Let me share one that involved a faculty member. My nickname was Andy, which was much less embarrassing than many

others, so I didn't (or dared not!) complain. In my second semester, we had this professor for a humanities course. She was friendly with students and would ask us our nicknames. She once asked mine and after hearing it exclaimed "Randy Andy!". I was totally taken aback because I had never experienced that from a professor. There were a good number of professors who interacted with us like peers (especially outside the classroom), and it meant a lot to us.

What were your major interests/hobbies during your insti life? Were you involved in any clubs or events?

The opportunities back then were a lot fewer than you have now. However, this doesn't mean that we had no life outside of studies. We would have our hang out sessions in the hostel wings. We would congregate around a newspaper and have these "funda sessions" - general discussions about life, politics and everything under the sun. Looking back, I didn't realise the value of these discussions back then, but they taught me how to think coherently and how to articulate my thoughts. I now realize how useful they were. I also played sports, especially team sports which helped me learn the value of teamwork. I played hockey and badminton. I didn't make it to the inter-IITs but I was briefly in the Jamuna hostel team. Finally, there was Mardi Gras. Although we didn't have nearly as many organized clubs as IITM has today, we still had a lot of fun.

What were your career plans and how did things ultimately turn out to be?

I had no clue what I wanted to do when I graduated. You are fortunate if you enjoy both the journey and the destination. I have been very blessed that way. But I didn't have any specific idea of where I would be, what I would be doing. Infact, I thought I study Biomedical engineering since my B. Tech project was in that field. I applied for graduate studies in Biomedical engineering, but was not quite what the future prospects were. I also applied to a few universities in Computer engineering. Since it had a broader perspective, I went for it. I later reconnected with Biomedical engineering in my research at Purdue and I think the interface between the engineering and medicine is a key area in which many future advances will occur.

How does it feel coming back to your alma mater?

Coming back obviously feels warm and wonderful. Many memories come back when I visit the Institute. Fortunately, I have had the opportunity to visit Chennai frequently in the last 15 to 20 years. Since I am interested in music, I try to be in Chennai in December/January. I enjoy every opportunity to visit the campus and reconnect with the faculty members who taught me. Recently, I have become much more closely involved with IITM, especially with CCBR and my visiting faculty position here. It felt weird initially as I was so used to being a student here.

Of course, there are certain experiences I cannot relive, like hostel life, which gave me some of the most enjoyable days of my life. I think my batch at IIT was the smartest and the most fun peer group that I have been a part of and I am proud to have been associated with them.

There are quite a few moments that really stand out. Two years back I went to play badminton and I was asked if I was a PhD student. I was thrilled that I could still pass off as a student (laughs)! In the past decade, the institute has been reaching out to alumni much more proactively. I never felt like I don't belong here. I always feel welcome.

How would you describe yourself when you first joined our campus?

I was a kid, the baby of my batch. I was nearly 2 years younger than all my classmates. I had skipped a grade in school because I was administered the incorrect admission test, and had a double promotion. This had unexpected benefits. I actually got away from getting ragged as many seniors thought I was somebody's younger brother (laughs). Everyone here was bigger and taller than I was, but I caught up during my IIT years. On the whole, I grew a lot here - physically, intellectually and emotionally.

If you could describe yourself in one word now, what would it be?

(Laughs) It's really difficult to talk about yourself. I would like to be thought of as someone who tries to give his best in whatever he does.

You have been chosen by MIT TR35 for making mobiles secure. How did the idea of making mobiles secure shape in?

I was working for a NEC (a Japanese computer, communications and semiconductor company). NEC in the early and mid 90s was the top semiconductor company in the world, a position now held by Intel. NEC chips were used in many appliances and mobile phones were one of them. NEC, being a diversified company, was also leading phone manufacturer. So they had this unique perspective of having 2 or 3 levels of the customer chain within the company. You could talk to your customers and their customers directly and find out the problems that they had. We soon realized that our customers were using phones to download untrusted apps like games, but also to carry out sensitive work like access your bank account or trade stocks. This convergence of sensitive and untrusted functions was something users were concerned about, especially when the first mobile viruses were reported. So we set out to solve the problem. Looking at the history of security in PCs and internet, we realized that software solutions end up in a cat and mouse game between attackers and security providers. We could, of course, try the same thing with mobile phones but we wanted to try a more ground-up approach with phones, making them more fundamentally secure. Being a hardware person myself, I asked what could be done in hardware to make the phones more secure and provide a robust foundation for the software and apps to run. So, we developed a technology to segregate the computing environment, which would guarantee that all the sensitive apps would be secure even if the operating system was compromised. Normally the OS is omnipotent and omniscient, which is a huge problem because the OS is large and it is difficult to make it free of bugs. We decided to separate a small set of applications and provide a secure computing environment with a minimal codebase and ensure a strong isolation between the regular OS and applications and the sensitive apps. Concurrently, we also decided to embed hardware that would enable the most computationally intensive security functions (encryption, authentication, digital signatures, biometrics) to be performed with minimal impact on user experience.

You recently mentioned in an interview that, "There is a need to radically improve the energy-efficiency of computer systems because of the explosion of big data. Or it will not be sustainable." Are we moving towards that sustainability?

I think it is an open question. If you look at the rate of growth in energy consumption, such as in data centres, it is tremendous. Most of the services we use like Google search, email and YouTube are powered by these data centres. Most end users don't realise this, but every time we fire a request we are burning a huge amount of energy. In most countries, data centres are the fastest growing energy consumers. Some radical solutions have been proposed like locating data centres near power stations to ensure energy supply or in cold places to avail of "free" cooling. These will take us a bit closer but fundamentally we have a problem. The semiconductor technology used in transistors was improving by becoming smaller, faster and more power-efficient at the same time. This is known as Dennard scaling, which enabled the doubling of clock frequency and number of transistors in each generation of chips, while keeping the power consumed under control. But that ended in the last decade. Transistors are getting smaller, but clock frequencies have stagnated. There are fundamental laws of physics that you cannot get around. When transistors get a few atoms, they don't behave like switches anymore. That's why the computing industry moved from clock frequency based performance improvements to multi-cores where parallelism is used to improve performance. However, these improvements have a limit. In parallel computing, more processors do not mean better performance, and saturation sets in very quickly. However, the demand for computing - driven by big data and the need to do meaningful things with data (artificial intelligence and machine learning) - is increasing. There is this divergence between the ability to compute and the demand for computing. People are trying out various alternatives. It is an interesting time to be in the computer industry. People are ready to listen to radical ideas and innovations. Innovations happen during times of great challenge because if there is a risk-free path, there is little incentive to innovate. So, the question is whether we can deliver the necessary technology to satisfy that growth in computing demand. If we are able to, the implications are huge.

You have been a student and a visiting faculty at Princeton. You are a faculty of Purdue. How are these institutes different from IITs? What should we do to reach their standards?

I would argue that IITs are already pre-eminent in terms of the abilities and accomplishments of their undergraduates. If you look at the selectivity of admissions, IITs are more selective than Ivy League or top-ranked global institutions. Therefore, I think it is fair to say that IITs have already excelled in one dimension. I think the big goal for IITs lies in evolving from institutions of undergraduate and teaching excellence to a research university. The idea of a research university is that the people who are involved in pushing the boundaries of knowledge, i.e., people who do cutting-edge research should also teach because they can bring the latest innovations and inventions to the classroom in a timely manner. I believe some of the IITs, especially IIT-M are well on the path to attaining this goal. Right now, graduate students at IITM outnumber undergraduates. That's remarkable compared to the days I studied here. Attracting the best undergraduate students to do masters and doctoral degrees would be an important step forward. Students are increasingly opting to stay back in India. I see that from the other side, the number of students applying to graduate schools abroad is decreasing. We are keeping the best brains in the country; we need to figure out how to get them to go for graduate studies here. If the IITs and IISc can't do world-class research in India, then who can? There is no choice for IITs but to evolve and fill this gap. If you look at China, they regularly publish in the very top rated conferences and journals. There is no reason this cannot happen with India as well. India certainly has unique capabilities and unique needs. But I think this broader concept of research-based universities producing top-class research is a challenge that IITs and IIT-M in particular need to address. I am happy to see major strides being made in that direction.

Do you see any changes in insti compared to the time you were a student here?

I think there is a lot of energy. There are many more clubs and activities to get involved in. There's excitement about entrepreneurship and these are all very positive changes. By entrepreneurship, I don't mean just starting a company, but embodying the spirit in everything you do. On the flip side, I think the students have many more distractions and demands on their time. I am thankful that I was not a student in the age of social media. It is very challenging to manage all these activities. In some ways, lIfe was much simpler for us.

Do you have any advice for students?

I don't feel I am old or accomplished enough to dole out advice (laughs), but I will give it a shot. One thing I would say is, whatever you pursue, pursue it with passion. Second, focus is very important. Don't try to be good at everything. There are a few people who are good at many things, who don't need to invest a lot of time to excel. But most people, even the special ones who get into IIT, really can't be good at too many things. Limit the number of things you pursue and pursue them with full passion and effort. Time management is the key.

There is generally a crowd following attitude prevalent at IITs. I didn't think deeply about applying to graduate schools. My seniors did so and I thought they would have figured out that this was the right way to go for IITians. But today's students are faced with a much wider range of options. You don't need to take the beaten path. I would advise more IITians to look at alternate paths. Back when I graduated, the beaten path was to apply to graduate schools in the US. Today, the beaten path is to found or join a startup, or to join a top multinational company. In some sense, things have come full circle. I would urge graduating IITans to consider careers in research. You can make significant impact and also get the intellectual satisfaction of pushing the boundaries of knowledge. For the most part of your study here, you are just consumers of knowledge, if you go out and work, you are going to apply only a small fraction of that knowledge. Contributing back to the body of knowledge and expanding its boundaries, that's a totally different ball game. It grows your mental abilities in a different way. There is a common perception that research is only for an academic career but that is not true. Research teaches you to think about undefined, open-ended problems and ways to deal with them. That is why successful technology companies employ many PhDs. In summary, this should come as no surprise - I would encourage more IITians to seriously consider research after they graduate.

Dr. M R Madhavan

[1990 / BT / ME]

President—Institute for Policy Research Studies
PRS Legislative Research, New Delhi, India

Dr. M. R. Madhavan graduated with a B.Tech. degree in Mechanical Engineering from IIT Madras in 1990 before obtaining a Management degree(MBA) and a Ph.D. from Indian Institute of Management, Calcutta in 1992 and 1996, respectively.

He is currently the President and Co-founder of PRS Legislative Research, a public policy research institution that focuses on the legislative processes in India. PRS was established in 2005 with three broad objectives: to support the work of MPs and MLAs with research to make the legislative process better informed; to collate and disseminate the work of legislators and legislatures for greater transparency; and to create and catalyse channels of engagement between citizens and elected representatives to make the legislative process more participatory. PRS publishes "legislative briefs" (short commented analyses) of Bills in Lok Sabha and Rajya Sabha and other articles related to legislation in India. Over the course of his research career, Dr. Madhavan has made several pioneering contributions towards strengthening the functioning of Indian legislatures including analysis of Bills introduced, interactive sessions on key policy issues, policy updates and workshops for MLAs, inputs to the media on the legislative agenda, workshops for journalists on tracking the activities of MPs and MLAs, and creating an agenda for reforming legislative processes. "The Laws of India" website is a web-based public database created by PRS that is the only publicly available source of all state laws. PRS team is often approached to contribute columns to provide a viewpoint on various key Bills.

Prior to PRS, Dr. M. R. Madhavan joined ICICI Securities as Vice President in 1996 and worked there for four years, until August 2000. He then became the "Senior Strategist and Economist India" in October 2000 and "Senior Strategist for Asia Region" in February 2004, at the Bank of America.

Dr. Madhavan is a featured speaker in NDTV and TEDx, and has contributed chapters to several academic volumes. His cutting-edge work in demystifying Indian Legislature and leadership has resulted in numerous recognitions and accolades, including the 'Distinguished Alumnus Award' from IIM Calcutta in 2014.

For his exemplary commitment towards improving the quality of political discourse through analysis and dissemination, IIT Madras and its alumni are proud to confer this award upon Dr. M. R. Madhavan.

Most of us hesitate to dive into unknown waters due to fear of what lies beneath, Dr. M. R. Madhavan shared with us his stories through a spirited conversation on education, politics and life, which serves inspiration to the driven, to dare to take the plunge and work your way to glory.

He says, "Remembering my time, fondly so, in the institute, we had several interesting experiences in our hostel life which I believe shaped the way we looked at life, the relationships that we built and the choices we made. We were alien to the communication technology as it is today; we used inland letters as cell phones, IBM punch cards to send messages and mostly watched sports on as our television. I was never really interested in engineering and coming from a time of wide spread economic reform in the country, I took to studying financial instruments. And, as it was for most of us, I had a few professors who were a major influence in my life and directed me toward the finance and operations management sector and I still feel that some of the decisions I make today are a product of their teaching. Surprisingly at the time, taking the MBA route was a very lucrative choice for most IITians and I, like as the 85% of my batchmates at IIMCalcutta moved from engineering to management, made use of the opportunity and dwelled into the financial world and by and by led to my setting up PRS . In summary, if there was one thing that I learnt from my time at IITM it was to be a creative independent thinker. The IIT Madras brand gave me my first leg up in life and through my experience here I developed a courage to take risks and take the untrodden path even with PRS."

"A lot iscan be achieved just by being at the right place at the right time. Most of us benefitted from riding the rising tide of economic reform post 1991 which led to me working in ICICI and BOA. I believe, a lot of the learning that led up to setting up PRS was from my previous jobs. Working in the financial sector, I learnt all the key aspects of research - exploring new sectors, persistence to find relevant information and communicating crucial information in a concise form. The corporate world teaches you, in a broad sense, how to run a business - handling people, organizational structure and other minor intricacies that are required to make it big in any entrepreneurial venture. Running a non-profit organization like PRS draws on several of these ideas including maintaining quality of service, raising funds, running an efficient system, etc. The main motive behind a non-profit organization is to create sizeable impact. For example, the total expenditure on education by the Government of in India is about 2 lakh crore annually which means there it serves a huge plethora of opportunities to improve the system which can be reaped by building an efficient system. These are the kind of problems that need our attention today - to make the existing institutions more efficient to best utilize the resources available and creating lasting impact for further generations to benefit from - This was the idea behind PRS Legislative Research" he added.

When quizzed about taking the risk of quitting his reputed and well-paying job and he joked, "Stable jobs are boring. I didn't want to spend my time in making rich people even richer but create real impact. I believe the best time to start up and take up an entrepreneurial venture would be around 30, where you are at the peak of your physical capabilities and you have the right temperament to perform well in your chosen field."

Further, he says "The one challenging task in the non-profit sector is raising sustained funding for the company. Most non-profits work with the motive of creating demand in a new sector, and if you are successful in your work, on one side you create the large demand while on the other side the funds flowing in do not match the rate of increase of demand making it difficult to sustain. For anybody looking to work in the non-profit sector, this should be a primary concern especially if they're successful. PRS has been growing by leaps in the past few years currently briefing over 400 MPs and over 700 MLAs from over 12 states. Given the scale that we are functioning, we have been successful in raising funds and running an efficient system. We get over 700 citations a year in popular media channels and are among the highest in online reach in the policy research space internationally. Our ultimate goal is to make the country a better place for our citizens to live in which involves three major parts — One, for that major policy decisions are made with greater evidence based research and greater informed participation of stakeholders to create a better and stronger democracy. Two, building a stronger parliament by helping the elected representatives make informed choices and help hold the government and its underlying bodies accountable for their actions and Three, to help put the tax payer's money and resources to better use by making the entire union budget allocation financially sound and more democratic."

Dr.M.R.Madhavan signed off with a moving message for the readers saying—

"Take risks. Always pursue something that is intellectually stimulating in which ever field interests you most. Never limit yourself."

—Dr.M.R.Madhavan, President and co-founder of PRS Legislative research, graduated from IIT Madras with an undergraduate degree in mechanical engineering in the year 1990. He went on to do a MBA and a PhD from IIM Calcutta. After a long career of working in leading banks in the world including ICICI securities and Bank of America, he co-founded PRS Legislative Research with his former colleague C.K. Madhukar. PRS is dedicated to help national and state legislators with interpreting the verbose texts that define the law, predicting repercussions of alterations to the law and to be more informed while making major policy decisions that affect the future of this country.

Dr. Pradip Dutta

[1987 / MT / ME]

Professor—Department of Mechanical Engineering
Indian Institute of Science, Bangalore, India

*P*rof. Dutta received his Master's degree in Mechanical Engineering from IIT Madras in 1987 after a bachelor's from IIT Kharagpur. He obtained his Ph.D. from Columbia University. After an engagement as a National Research Council (NRC) Fellow at the Naval Postgraduate School, California, he held faculty positions at Columbia University and at Tennessee Tech. University, before joining the Indian Institute of Science as a faculty member in 1996.

Prof. Dutta's research group focuses on development of advanced energy technologies related to solar energy, cooling of electronics, spacecraft thermal management, and on thermal technologies related to solidification and advanced casting processes for light weighting. Prof. Dutta has published three web-based books for undergraduates and postgraduates, co-authored several book chapters and published over 250 papers in international journals and peer-reviewed conferences. He is widely acknowledged for his vast knowledge and rich experience in advanced energy technologies and has been elected a Fellow of the ASME, a Fellow of the Indian National Science Academy (INSA), a Fellow of the Indian Academy of Science (IASc), a Fellow of the Indian National Academy of Engineering (INAE), and a Fellow of the National Academy of Sciences India (NASI). Prof. Dutta has received the VASVIK Award for Industrial Research (2010), IISc Alumni Award for Excellence in Engineering Research (2012), INAE Chair Professorship (2012-2014), INAE Outstanding Teacher Award (2014), IIT Kharagpur Distinguished Alumnus Award (2015), and most recently the J. C. Bose National Fellowship in 2017.

He serves in the Editorial Board of IEEE Transactions on Components and Packaging Technology, and of ASME Journal of Electronic Packaging. At IISc, he has been a co-founder of the National Facility for Semisolid Forming, and co-Director of the General-Motors-IISc Collaborative Research Lab. Currently, Prof. Dutta is the Chairman of the Department of Mechanical Engineering at IISc, and co-leader of the India-US Consortium SERIIUS (Solar Energy Research Institute for India and the United States), under the Indo-US Joint Clean Energy Research and Development Center programme.

For his praiseworthy commitment to excellence in development of advanced energy technologies, IIT Madras and its alumni are proud to bestow this award upon Prof. Pradip Dutta.

Dr. Pradip Dutta received his bachelor's degree in Mechanical Engineering from IIT Kharagpur, his master's degree from IIT Madras and Ph.D. from Columbia University. He currently heads the Mechanical Engineering department at the Indian Institute of Science

How was your time at the institute as a student? Do you have any fond memories to share?

My time at the institute was brief. I spent only one and a half years here as I was a Master's student. As I was coming in with industrial experience in a specific field, I was rather focused on enhancing my knowledge in the same field through research experience. Despite the academic course load, I took up my project work seriously and early on. Although my overall stay was just one and a half years, whatever I learnt, produced and achieved over the course of it was to my greatest satisfaction.

There are many fond memories to reminisce about. I had great professors and guides who encouraged me to pursue academia, while I was still considering going back to the industry. I was also involved in sports, as I represented the IIT Madras contingent in cricket and table tennis. I had the wonderful opportunity of playing with and against the famous cricketer Robin Singh who was also studying in Chennai at that time. Sports, especially Cricket, was something I always valued a lot apart from academics.

What hostel were you in? Any hostel incidents worth remembering?

I was in Tapti hostel, which was one of the PG hostels at that time. The hostel was a hub of activities. A major advantage was that Tapti had just been converted from a UG to a PG hostel, so it still housed quite a few UGs who were in their final year. There was a good mix of students and it allowed newcomers like us to immediately feel the pulse of the college..

Can you share with us your journey before IIT Madras? Why did you take up Mechanical Engineering?

I was fortunate enough to have a good enough rank to get into virtually any stream in any IIT of my choice at the time. I chose Mechanical Engineering as was very much attached to Physics during my high school, and also I had some prior exposure to mechanical engineering due to family background. As always, job security is a major factor, and the stream did provide that; as it does now too. The perception of some engineering branches being more preferred over others existed that time too, but many students still went for their passion over peer pressure. Nowadays, however, most students seem to be taking up specializations according to what their entrance exam ranks fetch. Can't blame them totally, as most counselling places guide them towards a pre-determined order of preference.

However, interest can be discovered in a discipline if one has some research exposure. These days a lot of courses are common and interdisciplinary fields of science are on the rise. Hence one can specialise (in higher studies) in the paths he/she wants despite it not being explicitly related to his/her branch. The options now are immensely vast and also with excellent career prospects.

Now that you mentioned interdisciplinary, recently five new interdisciplinary specialisations have been approved by the government, one of them being "Energy Systems". Are you aware of this? What are your thoughts on it?

Yes, I am very much aware of these developments. However, I have a reservation regarding these

interdisciplinary programmes being introduced at the undergraduate level. One must have good fundamentals in the undergraduate programmes and get a taste of what the specialisations are via electives and minors. I believe that fundamentals in one area at least should be strong enough, before one takes up interdisciplinary areas later in life.

You did your undergraduate and postgraduate in India, and did your PhD abroad. How is the student culture different abroad from India?

I taught at Columbia University and Tennessee Tech. University. Curriculum-wise, the Indian system is similar to that of US. However, one difference I have generally noticed that Indian students are not much experienced with hand-on practical engineering work. For instance, in US, typical students coming from a rural background may have had the experience of repairing tractors and farm equipment with their own hands. Some may have even built their own houses! Many would have "chosen" mechanical engineering because of their passion, and not just based on what they would have obtained as a result of any entrance exam rank. But I see that recently the "hands-on" culture is coming to Indian colleges also, as many of them are participating in several national and international level project competitions.

You held a few positions abroad before coming to India and joining IISc. What was your reason for returning to India and taking up the position here?

The main reason is, and I may differ from others on this matter, that I didn't go abroad with the idea that I would continue to stay there if things work out. I went solely for the purpose of education. Once that was fulfilled, I only followed it up with teaching and further research, but I was always on the lookout to come back to India. I always believed that I can more easily make a difference to the society if I work in an Indian institution, though I could have become professionally as successful if I stayed on in an institution abroad. The research funding opportunities in India are enormous, and there is full freedom in whatever we want to work on. Here, I am getting a sense of professional and personal fulfillment, which I am not sure if I would have got abroad.

You chose to remain in academia. What other career path would you have chosen?

Good question! I had a taste of a regular industrial job, but experience in the R&D sector gave me the passion to strive for something new. The kind of freedom we get in academics is almost unlimited. Most importantly, working with students is a great pleasure, as it keeps our minds fresh and makes us feel younger.

What other career option? Nowadays, of course, the option of entrepreneurship and startup seems very interesting, and once can try out innovative ideas and make them work; back then this option was not very well established. I would urge present students to explore this option seriously.

Can you explain briefly your area of research?

My research group broadly works in the area of thermal technologies applicable to industries, spacecraft thermal control, and solar energy. Solar energy has two "classifications", Photovoltaic and thermal. For mechanical engineers with thermal specialisation, our contribution is in the area of solar thermal. We work on many innovative projects in this area, based in India and also in bilateral collaborations with different countries. We are researching on new types of power cycles, such as

new working fluids that provide more efficiency at lower temperatures. We are also working on breakthrough technologies to make renewable energy more economical and affordable. Not all of them may work out, but that's part of research!

Are there any visible changes in the institute that you have noticed?

One very visible change is the number of students. It has grown tremendously since our time. Many new initiatives have been started in the institute, such as support for startups. Infrastructure has improved a lot to keep pace with the growth of projects and other activities in the Institute. These initiatives will shape the future of the students, faculty and the institute.

What is your message for the students of the institute?

Coming to the institute just to earn a degree should not be your only aim. IIT students are one of the brightest. Even if they don't do anything special, the degree and the brand value of IIT can still fetch them a good job initially. But you career aim should be much higher than that. Sky is the limit! Make use of your surroundings and resources while in college, so that you can make a difference to our society later in life. You must remember that the outside world is very competitive as there are many talented people coming from different walks of life. While only a small fraction of students enter IITs, many others outside the IIT system can be equally talented too. Finally, whoever working sincerely with a passion will become successful in life and make a difference. Simply becoming complacent by virtue of being in an IIT will certainly not help.

Dr. Ramayya Krishnan

[1981/BT/ME]

Dean and Professor of Management Science and Information Systems,
Carnegie Melon University, USA

$\mathcal{P}$rof. Ramayya Krishnan received his Bachelor's degree in Mechanical Engineering from IIT Madras in 1981, and both his Master's and Ph.D. from the University of Texas, Austin in 1983 and 1987, respectively. He is currently the W.W. Cooper and Ruth F. Cooper Professor of Information Systems at the H. John Heinz III College and the Department of Engineering and Public Policy in the College of Engineering at Carnegie Mellon University. A faculty member at CMU since 1988, Krishnan was appointed Dean when the Heinz College was created in 2008. In 2014, he was reappointed upon the completion of his first term as Dean. In 2016, INFORMS, the global Operations Research and Management Science (OR/MS) Society, recognized the Heinz College with the UPS George D. Smith Prize for educational excellence in Analytics.

Since he joined CMU in 1988, Krishnan has compiled an outstanding research record in Operations Research and Management Science (OR/MS) and its applications to Information Systems. His contributions have been recognized by INFORMS, through its highly-selective INFORMS Fellow award, and in 2015, he was conferred with the Y. Nayudamma Award for his contributions to information technology and telecommunications management. He has been the President of INFORMS Computing Society and INFORMS Information Systems Society, and has edited premier journals in the fields of Operations Research, Management Science and Information Systems Research.

Krishnan has a worldwide reputation for his expertise in data sciences, with many papers and book chapters to his credit. He was invited to speak on data analytics at the World Economic Forum in 2011. As U.S. Secretary of State, Hilary Clinton appointed him to serve as a STEM expert of US Delegation to APEC (Asia Pacific Economic Consortium) in 2012. In September 2014, he provided a private briefing on "big data" to the 10 ICT Ministers of ASEAN. He is a former member of the Global Agenda Council on Data Driven Development at the World Economic Forum.

For his seminal contributions to the field of Information Systems, and for his administrative excellence, IIT Madras and its alumni are proud to bestow this award upon Dr. Ramayya Krishnan.

Dr. Ramayya Krishnan graduated from IIT-M in 1981 with a B.Tech in Mechanical Engineering. He is currently the Dean of the Heinz College of Information Systems and Public Policy and Professor of Management Science and Information Systems at Carnegie Mellon University. He has been conferred the Distinguished Alumnus Award for the year 2017. His research interests include consumer and social behavior in digitally instrumented environments, an area in which he has published extensively. We were fortunate enough to get to talk to Dr Krishnan when he visited the institute to receive his award.

Could you describe your time at IIT Madras? Any fond memories you would like to share?

I graduated from IIT-M in 1981 with a B.Tech in mechanical engineering. I have many fond memories. I came here when I was relatively young, around sixteen and I kind of grew up here. We had our version of Saarang, called Mardi Gras which was a lot of fun. I used to play hockey which I enjoyed greatly. I was also the General Secretary of my hostel, Godavari, when I was there. I have fond memories of a number of things, from big social events to having a group of classmates, both in Alakananda and then Godavari who were really good friends, who I loved going out with, and with whom I have been able to keep in touch with over the years. When you forge these bonds of friendship when you are young they stick with you all your life.

That's all the outside of academics. Academics was initially difficult because I came directly from high school. I was enrolled in the Indian School Certificate or Senior Cambridge, and at that time after eleven years of school you wrote the entrance exam and came here directly. So, going from high school to IIT was a learning curve in terms of getting used to periodicals and the overall work ethic required to succeed. Periodicals were the quiz system in IIT-M in those days conducted on a regular basis over the course of a term. This all took a lot of getting used to!

All in all, I've had really fond memories. Everything I've accomplished, I give credit to what happened here.

How does it feel to be a Distinguished Alumni Awardee?

It's very humbling. I was told that there are around a hundred and fifty or so distinguished alums, and the number of alums that have graduated from the university is around forty to fifty thousand, a very large number. It's very humbling to be inducted into a set of people who have made very significant contributions. I'm also very proud to be recognized by my alma mater.

Could you share with us your journey after graduating from IIT?

I graduated with a degree in Mechanical Engineering. During the course of my time here, one of the areas that I liked and which excited me was Applied Mathematics. Graduates of Mechanical Engineering learn a lot of Applied Mathematics and in my case, it was Optimization and Operations Research that I was excited about. So, after completing my B. Tech here, I went to the University of Texas and enrolled in a program in Industrial Engineering and Operations Research with a minor in Computer Science and Statistics and then went on to a earn a Ph.D. in the same area.

The set of people that were in these programs came from across the world, so being able to hold my own in graduate school -- that was the first sort of confidence boost I got from having gone to IIT.

Dr. S. Sudarshan

[1987/BT/CS]

Professor, Computer Sci. & Engineering, IIT Bombay, India

*P*rof. S. Sudarshan received his B.Tech. in Computer Science and Engineering from IIT Madras in 1987, and completed his Ph.D from the Univ. of Wisconsin, Madison in 1992. After working for 3 years at AT&T Bell Laboratories, NJ, USA, he joined the Department of Computer Science and Engineering at IIT Bombay in 1995, where he is the current Subrao M. Nilekani Chair Professor. He was the Head of the Department from 2013-2016.

Prof. Sudarshan is widely recognized among computer scientists for his vast knowledge and rich experience in the area of database systems. He has built a variety of software systems, one of which is used in a large number telephone switches manufactured by Lucent USA. He is a co-author of the internationally best-selling textbook "Database System Concepts", which is now in its 6th edition and translated into 4 languages. He has made foundational and impactful research contributions to a variety of areas within database systems over the last two decades. His research contributions in the areas of query optimization, and keyword search on semi-structured data are highly cited, and have earned him the "Influential Paper Award" at the IEEE International Conference on Data Engineering (ICDE) 2012, one of the top 4 conferences in the area of database systems, as well as the Best Paper award at COMAD 2012. Several of his papers have been selected as among the best papers at top conferences, and invited for publication in journals. He is among the most highly cited computer scientists in India, with a total of 12,000+ citations, and an h-index of 43, as per Google Scholar. He is a Fellow of the ACM, USA, as well as Fellow of INAE and NASI.

His work has been recognized through a number of awards and accolades including the IBM Faculty Award in 2001 and 2006, and the Bell Labs President's Silver Award, 1999. He was a Member Board of Trustees, Very Large Data Base (VLDB) Foundation (2010-2016), and an Advisory Committee Member for the Proceedings of the VLDB Foundation, in addition to being Associate Editor of ACM TODS, and IEEE TKDE.

For his laudable commitment to excellence in database system sciences, IIT Madras and its alumni are proud to confer this award upon Prof. S. Sudarshan.

Dr S. Sudarshan is the Subrao M. Nilekani Chair Professor in the Dept. of Computer Science and Engineering, IIT Bombay. He completed his B.Tech in computer science engineering from IIT Madras in 1987. He went on to pursue a PhD in computer science from the University of Wisconsin-Madison after which he worked for a few years in AT&T Bell Laboratories. True to his principles however, he returned to India in 1995 and joined the Computer Science Department in IIT Bombay. He's taught there for over 22 years now and has been pursuing research, mainly in database systems. He was honoured with the distinguished alumni award by IIT Madras in 2017.

For starters, we asked him how he felt about coming back to the institute after such a long time, and what changes he has observed. He replied that he had been coming regularly, but over time he had observed that the most visible changes were in the hostel area, while the academic area was more or less unchanged, especially when compared with IIT Bombay where there have been a lot of changes.

Dr. Sudarshan then went on to talk about his most memorable incidents. He lived in Mandakini, and had many friends there. One of his most cherished memories was cycling about 100 kilometres to Mahabalipuram with some of his friends. Apart from friends, he also had many mentors. He spoke about one of the faculty members, Prof. C. Pandurangan, who had mentored him for his B.Tech project, who frequently interacted with him and his friends, which created a very friendly atmosphere. This reflects the fact that student-faculty interactions were much stronger back then, since it was a much smaller place. For example, there was a professor in his time, Prof. H. N. Mahabala, who used to call all the students of his course for dinner at his house, at the end of every semester. IITM is a very different place now. This is mostly because of the huge increase in the number of students.

Dr. Sudarshan and his friends would also have long arguments about a various topics, and the pointless topics were always more fun, and they had plenty of those. Back then, the hostels were divided on the basis of branch, so all the computer science and metallurgy students in the 83-87 batch were allocated to Saras. There were small groups of people who knew each other very well, so there were many memorable times and lots of fun interactions.

Speaking about his life after IITM, he explains why he opted for a Ph.D. and why he decided to go abroad after his degree. Before he joined IIT, he said, when he was in school he had a friend whose father worked in a factory. He and his friend actually visited the factory once. They got to see the factory and what went on inside. Inspired by the visit they also visited a bunch of other factories through various contacts. Dr. Sudarshan went on to describe the Indian industry at that time, from what he had observed, although it's a little different now, he adds. At that time, workers and engineers would have buses to transport them to the factory, while managers whose background was invariably in accounting, would have cars. Not just for themselves, but even for their kids to be chauffeured to school, whereas engineers wouldn't even get a car for themselves! This made clear that the Indian industry was biased towards people who did finance and management jobs, and biased against people

who did technical jobs. So after this experience, Dr. Sudarshan decided that he didn't want to work in the engineering industry in India, if this was how they treated people who did technical work. So if he stayed in India, he would rather do academics. Things are of course very different now, especially in the IT industry.

He was a part of the second CS batch in IIT Madras. The software industry is big today, but it was really small back then. He then began to talk about why he went to the US in particular. One of main reasons was that the research program in IIT was much smaller than it is now, and it was the same case for the rest of India, barring a few exceptions. Also, there were hardly any PhD students back then. Computers you had were relatively older and the internet didn't exist back then. So it became clear that he would go to US to get his PhD. Also at that time, a very large fraction of the class went on to do masters or PhD. Today it is considerably different, he notes, with regards to students' reasons to go abroad.

He then talked about the changes that he had observed in the students and their mindset. Since Dr. Sudarshan was a student and now a faculty member, he had two different viewpoints. One great change he had observed from then to now was that students have much wider exposure, and the number of students who want to do hardcore technical research has fallen sharply. The number of people who want to work in the industry or do startups is very different now as back then the word startup didn't exist in India. Another aspect that is clearly reflected in time, is that a lot of the focus has been on doing fairly straightforward things like making apps, where you can make money. So research has been slightly neglected by students, he says. But there are a lot of technical challenges in computer science, as well as in many other branches of engineering, and students can explore these. The number of students who are thinking about doing research and addressing some of these challenges is again on the increase, after a big drop some years back.

Also, the number of students has gone up sharply and the interaction between faculty and students has gone down. Dr. Sudarshan expressed that he couldn't really remember the names of most of the students in the class that he teaches, because the class was so big. Correspondingly, the other thing which he noticed was the effect of technology. Unfortunately, several students do not even attend class since they are able to get whatever they want from online courses. He spoke of how Stanford professors had dealt with this problem. Stanford professors found that students were bunking their classes, and they decided to do something about it. However, instead of strict enforcement, they adapted themselves to the situation. They decided to try and make all the material and lectures available online. They recorded short lectures and uploaded them for all the students to access. Classes were turn into tutorials and problem solving/discussion sessions. Surprisingly, they found that it actually worked, and more students were watching the lectures online and benefiting from very interactive classes. This is the flipped classroom model. However, such an approach may not always work, it depends on the situation and the location. Once they put up the lectures online, they asked themselves, why can't we make it available to others? It was also possible to have exams online, allowing courses to be delivered completely online. Thus were born MOOCS, which have made online courses available to students across the world.

This problem that the Stanford professors faced is also prevalent in IIT Bombay, where Dr. Sudarshan teaches. There is a certain level of disconnect that happens after few classes where students bunk classes, do badly and sort of lose motivation for subsequent classes. This was something that did not happen in his time. There was no internet, so if you wanted to learn something, you would go to class, or read a book. Either way, it worked. Even though he finds students sometimes disillusioned these days, on other hand he also admits that students are achieving a lot more than they could in those days. For example, in IIT Bombay there is an underwater robot built by students that has won prizes internationally. There is also a racing car team, which participates in inter IIT and other racing competitions. There's a self driving robot which students have built. Similarly, there are a lot of other good examples happening today which wouldn't have happened back then. He thus finds that students are dedicated and have been achieving things that he could never even dream of back in those days.

Dr. Sudarshan then began to discuss why he came back to India, even though he didn't have any problems working in the industry in US. He said that India was a much poorer country then, than it is now, and even today it remains not fully developed in several fields. So he didn't believe that staying in the US was morally the right thing to, and he always wanted to come back and contribute to India's development. Many of his discussions with his classmates back then were on what they wanted to do in life, and there were quite a few who wanted to come back. Family is also very important. A significant fraction of his class who went to the US is back in India now. Maybe about a third of those who went to the US actually came back, which is not a bad number. Nowadays, many people don't even go to the US, they stay here and work as there are opportunities now which were not available at that time.

Dr. Sudarshan then began talking about his research and the work that he does. His work is in the field of databases. His work spans multiple sub-areas but the primary focus has been on query processing and optimization. We all use computer systems all the time. Every app that we use has databases behind it and issues queries to the databases to retrieve any information that you want. A lot of the work involves figuring out how to optimise queries that the database receives from users. Users don't write queries directly, but when we use an app the database gets a request. So a well designed app can give a very good response time, finish large queries quickly and so on. A well designed execution plan for the query is vital for good performance. One of the reasons why database systems have become very popular is because they have something called optimizers which are used to figure out what the best way of executing a query is. A lot of his research has been on how to extend optimizers to do things that they were not doing earlier. For example, optimizers that can take a bunch of queries; find out a way of sharing things between them and executing them faster as a result. There are a number of other issues like this which focus on how to speed up applications that use databases.

Dr. Sudarshan's work also deals with how one can rewrite applications to optimise their access to the database. It involves actually taking Java code containing database queries, and rewriting the Java code to optimise database access. Another of his research areas addresses the problem that programmers and analysts write queries, but are at times not sure if the queries are correct. So how do you check if the query is right? He has worked on techniques that automatically generate test data to detect bugs in queries. He has subsequently used these ideas to perform automated grading of SQL queries written by students, and built a system that implements these ideas. And finally, he has worked on the problem of querying databases using keywords, much as we query the web using search engines, such as Google, by typing a few keywords. Dr. Sudarshan, one of his colleagues and

several students in IIT Bombay tackled this problem and came up with solutions for questions like what it means for something to be an answer to achieve a query, how the answer can be constructed efficiently from data in a database and how to rank these answers in a meaningful way. There were also a number of sub-problems addressed from 2001 to 2008. This field became fairly prominent because many people realized that this was an interesting area to work in.

Dr. Sudarshan then spoke about the research scenario in India and the US. In his opinion, the research scenario in India has been improving steadily in places across India like IITs, IISc, research institutions and so on. Dr. Sudarshan also expressed his appreciation for the quality of work that was going on across all these places in multiple areas. In India, people are also doing a lot more cutting edge work now than what was customary back then, he says. The number of people working in these fields has also increased. It is a very positive trend, not just in computer science, but also in all other branches, he adds.

We then asked him what he would recommend to a student about working abroad. He said that this was a very personal choice, and it would be very self serving if he asked people not to go abroad. However, he said that he would be very happy if students don't go to the US and instead work with people here: it would of course be good for him and other faculty, but it will also be good for India. But we have to keep in mind that each person should make an individual decision; what is optimal for one person may not be optimal for another. For research, it is important that people go to the best place that they can get into. This should not be based only on overall university rankings, but it depends on the areas one is interested in. We should work with the best people that we can, and if those best people happen to be in India then that is great and if they happen to be in the US, then that's great too. But of course there are people who want to be in India for a number of good reasons. Today, regardless of what area you want to work in there are excellent groups of people working in that area somewhere in India. Every IIT has the best researchers in some area. But regardless of what area one picks they will find some place in India which will be doing top notch work in that area, so it would be advisable to work with them.

We asked him to throw some light on research, as the general perception is that it is very painstaking and time consuming. We also asked him to provide some valuable advice for students of IIT Madras who are interested in research, but are facing a dilemma. He said that first of all someone interested in pursuing research should get acquainted with research while they are doing their B.Tech degree. They should take courses wherein they have to read research papers with current research, and understand what is going on in the field currently. A key part of research is finding interesting problems to solve. Research gives you a lot of intellectual knowledge, however it is not limited to intellectuals only. Students should understand what research is to see if they like it before thinking of a PhD. There are some who are not motivated by it. Then there are people who are very happy doing other things, or are looking for things which might make a difference in other areas, which may not primarily involve intellectual challenges. But whatever you do, there are challenges. Either way, what you do should have an impact on the world. , and unless and until it does, it is simply pointless. Even though many technical jobs in the industry involve straightforward development, even such jobs can provide other interesting challenges to be solved. So there are a wide range of opportunities and challenges for our generation.

Dr. Sudarshan always advises his students to first join the industry and understand what is going on there. In this process if they feel inclined towards research, he urges them to come back, but the important thing is to remember that one must be completely clear about this, because research requires a lot of patience. One may later find it disheartening if they are not sure about working on research. He also said that has a lot of students s who have gone down this road, then came back to research, and now are very successful.

Dr. Sudarshan then spoke about what is lacking in industrial research in India. In India there is really not much difference in terms of pay packages between industry jobs, the ones right after B.Tech and ones at the post PhD level. And this is especially true in the case of IITians joining right after B.Tech. So there is not much incentive, monetarily speaking, to pursue a PhD in India. But this is not the case in US, primarily because there are a lot more product based companies there. At some point, these companies need people with sound technical knowledge. That is still in its early days in India and technical jobs in product companies here are much lesser in number. But the one good thing is that industries across all areas have started setting up their own research labs in India. We need to ramp that up further, if we are to transform from primarily a service provider into a product driven country.

Lastly, we asked him if he had a message for the students in IIT Madras.

"Follow your heart, don't fall into the peer pressure trap. Discover what makes you happy, but don't pursue something that will leave you penniless though (laughs). If you don't like what you are doing or are doing something just to make more money, that is not success in life. You should be doing things that motivate you and make you happy. In that sense doing research and being a faculty member in an IIT has been very satisfying and I would like to see more IITians making the same choice and enjoy their lives as I'm enjoying mine."

Shri. Satish Pai

[1985/BT/ME]

Managing Director, Hindalco, Mumbai, India

Shri. Satish Pai graduated with a Bachelor's degree in Mechanical Engineering from IIT Madras in 1985. He took over as the CEO of Hindalco's Aluminium Business in August 2013 and his main focus was the ramp-up of the three mega Greenfield projects that took alumina capacity to 2.7 MT and aluminium capacity to 1.3 MT. In February 2014, he became the Dy. Managing Director of the company and was entrusted with Hindalco's copper business as well. Satish took over as the Managing Director of Hindalco in August 2016, a responsibility which includes the Novelis business.

Prior to joining the Aditya Birla Group Company - Hindalco, Satish worked with Schlumberger based out of Paris. Over the course of his illustrious career of 28 years with Schlumberger, where he was recruited from campus to begin his journey as a Field Engineer in 1985, Satish held various important positions, including "Executive Vice President - Worldwide Operations", and was responsible for all aspects of operations for Schlumberger globally, including HSE, people management, input to R&D, and P&L performance.

Satish serves as a Director on the boards of Aditya Birla Management Corporation Pvt. Ltd. and ABB, Zurich. A life member of the Indian Institute of Metals, he is part of CII's Task Force on China and is the Vice President and Chairman of the Government Affairs Committee of the Aluminium Association of India.

Satish is a passionate person who likes to participate and involve himself with the activities of his alma mater, having played a key role in the Silver Reunion fund-raising by his Class of '85. His trail blazing work in the areas of leadership, people management and transformative growth has resulted in multiple forms of recognition and accolades.

For his exemplary leadership and commitment to excellence in industry, IIT Madras and its alumni are proud to confer this award upon Shri. Satish Pai.

Could you describe your time at IIT-M and any fond memories you may have?

I graduated with a B. Tech in mechanical engineering in 1985, which was the last five-year batch. I was a resident of Tapti and have lots of fond memories. It was a nostalgic comeback for me today, when I toured the football field and other familiar haunts. In my time, our campus was a much quieter part of the city and we really didn't go out much, except to see Rajinikanth and Kamal Hassan movies in Taramani and Velachery. These areas were little villages then and the so called cinema halls were like thatched huts! On campus, our fun times were of course the Inter-IIT fests, weekly movies at OAT and the not-so-fun times were weekly exams, every Monday, Wednesday and Friday. I was the captain of the Inter-IIT football team and we probably had the strongest team during my time because a lot of students came from Orissa and Bengal. I myself came from Calcutta. We also used to play in the local Madras league at that time. Also, Tapti used to win the football gold in Schroeter regularly. I was actively involved in football, hockey, and basketball throughout my institute life.

What was your journey like after graduating from the institute?

I was part of the last five-year batch, and the first four-year batch was graduating at the same time in June 1985. In Mechanical, many people were well above 9 CGPA and if two batches came out at the same time, I feared it would be very difficult to compete for a good job. In the summers I had to stay back anyway for Inter-IIT training and around five of us, took extra courses and finished all our credit requirements by December 1984. That turned out to be a lucky break for me, because when Schlumberger came recruiting in December asking who could join immediately, I was ready and so was a friend of mine from electrical and both of us got selected. After that, I spent 28 years in Schlumberger in various roles across the globe and ended up as the COO and ran worldwide operations working in every country you can imagine. It was an interesting journey with tremendous learning and varied experiences. In July 2013 I came back to India and joined the Aditya Birla Group and now I am the Managing Director of Hindalco, the flagship company of the Aditya Birla Group.

Hindalco is one of the largest aluminium manufacturing companies and as the MD you'll be overseeing all the managerial decisions and setting the whole vision for the company. Can you describe the day to day activities you're involved in and any challenges you may face?

Hindalco is a metals powerhouse, and combined with our global subsidiary Novelis, we are number one in aluminium rolling, among the largest integrated producers of aluminium in Asia and we have the largest single location customer copper smelter. In India we operate across the aluminium chain from bauxite mining to alumina refining, aluminium smelting backed by thermal power and we also roll and extrude aluminium for products that serve core industry sectors like building & construction, automotives, packaging, electrical, defence, aerospace and many more applications.

Hindalco and its subsidiaries have a combined turnover of around US$15 billion, accounting for nearly half of the Aditya Birla Group turnover and today we have a presence in 10 countries outside India and 22 locations in India.

Coming from a totally different sector of oil & gas, I had to learn about aluminium and copper and I got that opportunity as CEO and Deputy Managing Director in my first three years at Hindalco, during which, I travelled extensively to every plant location and interacted with a cross-section of people. My role now is more of a coach and to facilitate the resolution of issues or problems. I am a great believer of strong value-based systems and processes and I am convinced that discipline and rigour on these can yield long term benefits. Hindalco has completed ambitious growth and expansion plans

and we are now moving to a new phase of consolidation with stronger focus on product applications. The metals industry is cyclical and in the last few years the Company has successfully survived and remained profitable despite the downtrend in international prices. Debt was high as we had made huge investments in Greenfield smelters, power plants and refinery in India. With the metals cycle now moving up, my team and I are now putting in place the next five-year strategy to seek opportunities for growth and value addition.

Could you elaborate more on some of the issues Aluminium and the entire manufacturing industry faced in the past few years?

As I said, the metals industry is cyclical and the last three years saw aluminium prices going down, the whole issue of coal scams came up and all coal mines were deallocated by the Honourable Supreme Court. One had to suddenly find alternative sources of energy. Lots of regulatory issues came up between the last government and the present one. The regulatory and compliance scenario in the mining business in India changed dramatically. Compliance is vital and we are following that strictly at Hindalco; making sure that environmentally every activity is done in the right manner with the right precautions, measures and well within statutory norms. These are some of the big challenges that the commodity sector faces today. Another major factor is the availability of power which is critical for industry in India. The manufacturing sector, especially metals, cannot succeed without consistent supply of power at competitive cost. That is one of the biggest problems. Take Hindalco, for example, we could actually say that we are a power company that also makes aluminium! Our captive power plants are the lifelines for our aluminium smelters, we cannot depend on the state grid for power due to higher cost and the reliability factor. Power outage for more than three hours would cause our aluminium smelting pots to freeze and the company would incur huge financial loss. So accessing continuous and steady power is a big challenge. I am happy to say that Hindalco has highly efficient captive thermal power plants that feed our smelters with consistent reliable power to produce aluminium.

How much has the institute changed since you graduated?

There has definitely been growth and positive change. There are many more buildings and the infrastructure has improved significantly. I remember the stadium being a mere track and today you guys have a full-fledged stadium. The residential accommodation has expanded. Mandakini used to be the freshers' hostel, now if you go that side, there are so many more residential complexes that have come up. The playing fields, the sports infrastructure are also much more modern. The new department buildings look like the Biotech building, a lot of the infrastructure is modern. I understand there are around 8,000 students nowadays, if you go back to 1985 there weren't even half that number. So it is good to see that the Institute has kept pace with the growing numbers and added to its facilities.

You were very actively involved in Inter-IIT during your time in the institute, could you share some of your experiences?

Inter-IIT was always very enjoyable, all the students would stay back in the summer for training since it used to happen in the summer back then. There was a lot of bonding among us as we would train together. I think I missed only one Inter-IIT meet because I graduated in four-and-a-half years, so I've been a part of four Inter-IITs- Bombay, Kharagpur, Kanpur and the home one in Madras. I think students who came to IITs in my time, and I don't think it has changed much, the majority of them were more academic than sports oriented. But in the real world, the extra-curricular activities and sports

prepare you more for corporate life than just academics. Therefore, I feel it is very important in the IITs, at least from what we saw - when you play team sports, when you compete, when you participate in extracurricular, it brings out the people skills that help in later life. Looking back, I feel all the guys in my batch who were active in other aspects in addition to academics, are doing very well in the corporate world today. Even when we recruit now I tell my colleagues to look for well-rounded individuals.

What steps do you think IIT can take to make sure students get a more well-rounded, holistic education?

If you take a place like IIT Madras, we have brilliant sports infrastructure, everything you want is here. I think now it is up to the students to utilise these facilities. When you go back to the outside world you will realise it is very difficult to get this kind of access to sports infrastructure to play squash, tennis, swim. I remember in my time, IIT Madras was very strong in all the cultural activities with Mardi Gras and we had a great rock band as well. I hear there is a very good cultural scene now as well. I feel the Institute is providing you with all the facilities, it has also taken off the pressure of the weekly exams that we used to have, so there is no reason why you guys cannot go out and get involved in all these activities.

Do you still keep up with all your sporting activities even now?

I have tried to. I was very active in squash until recently. Now I have switched to badminton. I play badminton, table tennis and also swim regularly. But it gets more and more difficult in corporate life, and especially in India, I find that it's very difficult. But you have to try and make the time which I always strive to do. When we used to train for Inter IIT, we used to start at the Gajendra Circle, run to the main gate and back, and that was the warm up! After that was done we used to go to the football field and start training.

How do you maintain a work life balance?

It is not easy, but I try to maintain a balance. At the end of the day, you have to get that balance right because if you don't get it right, your family life will suffer. I think you have to be conscious about it and make an effort, because today it is very easy to get drowned in work and every time if you want to work you will always find something to do. So the ability to step back and do other things is important. People are a lot more stressed today than they used to be earlier, you are in a connected world today. When I was an engineering student in the eighties, there was no concept of mobile phones, there was no internet, programming used to be done on cards. I don't know if today people have the ability to switch off and de-stress. I think that's a big factor that comes into the work-life balance. Even in my time in the Institute, there was a lot of stress among students given the academic load. Somehow, I feel having outlets like the Saturday movie, extracurricular activities and sports, allowed us to de-stress and that is very important.

Any advice you would like to share with the students, going forward?

The first piece of advice I would like to give is about handling issues in the grey zone. There are no strict black and white zones in life. There may be more than one option and neither might be a wrong one. Take risks and choose one that your value-systems allow, and stick with it. Life is a game anyway. Secondly, get control over stress. If you are less stressed, all tasks will feel easier and also your output will be much improved. Lastly, be accountable for the results. A true leader never blames his team for the failures. Success might be sweet, but life is never served on a silver platter. The willingness to accept failures and learn from them is the only way true success can ever be tasted.

Dr. Sethuraman Panchanathan

[1986/MT/EE]

Chair Professor and Executive Vice President, Arizona State University, USA

𝒫rof. Sethuraman Panchanathan received his Master's degree in Electrical Engineering from IIT Madras in 1986 after his bachelor's degree in Electronics and Communication Engineering from the Indian Institute of Science in 1984. He obtained his Ph.D. in Electrical and Computer Engineering in 1989 from University of Ottawa, Canada. Currently, Dr. Panchanathan is the Executive Vice President for the Office of Knowledge Enterprise Development and the Chief Research and Innovation Officer at Arizona State University (ASU).

Dr. Panchanathan's career journey began as an Assistant Professor in the Department of Electrical and Computer Engineering, University of Ottawa, Canada in 1989, where he founded the Visual Computing and Communications Laboratory. He moved to the Department of Computer Science and Engineering at Arizona State University (ASU) in 1997. Induced to address humanity's complex problems through science and technology, he founded the ASU Center for Cognitive Ubiquitous Computing (CUbiC) in 2001 to design and build technologies and devices to empower individuals with disabilities. CUbiC's flagship projects iCARE and Note Taker for visually-impaired individuals have received prestigious honors, including the Arizona Governor's Innovator of the Year in Academia Award and the Microsoft Imagine World Cup. He also founded and led the School of Computing and Informatics (2006-2009), the Department of Biomedical Informatics (2005-2007) and the Institute for Computing & Information Sciences and Engineering (In CISE), 2003-2009. He co-founded two start-up companies, MotionEase Inc., and RehabDev LLC, with his students. Under his leadership, ASU's research has quadrupled to half a billion dollars over the past 15 years.

He has authored more than 450 scientific papers including 80+ journal articles in refereed international conferences & journals, around 35 book chapters and has obtained a number of patents and copyrights. He is a Fellow of the IEEE, International Society for Optical Engineering (SPIE), the Canadian National Academy of Engineering, and the National Academy of Inventors (NAI). His sterling work received recognition from the then U.S. President, Barack Obama, who appointed Dr. Panchanathan to the U.S. National Science Board (NSB) in 2014 for a six-year term, the first Indian American to receive this honor. Dr. Panchanathan was also appointed to the National Advisory Council on Innovation and Entrepreneurship by the Secretary of Commerce.

For his praiseworthy commitment to excellence in technology, innovation and administration, IIT Madras and its alumni are proud to bestow this award upon Prof. Sethuraman Panchanathan.

Chennai36 brings you an exclusive interview with one of our Distinguished Alumni, Dr. Sethuraman "Panch" Panchanathan, Executive Vice President, Knowledge Enterprise Development, Chief Research and Innovation Officer, Arizona State University (ASU). Dr. Panchanathan is also Director of the Center for Cognitive Ubiquitous Computing (CUbiC), Chair of Computing and Informatics at ASU and a Professor in the School of Computing, Informatics and Decision Systems Engineering, part of the Ira. A Fulton Schools of Engineering.

Having graduated 31 years ago, Dr. Panchanathan spoke to us recently and explained that coming back to insti feels like coming home.

"When I was driving through the campus today, I was very nostalgic," said Dr. Panchanathan. "I was reminded of my time here as a student, and the beautiful thing about IIT is that it hasn't seen a tremendous amount of change - they preserve it really well."

When asked about being recognized as a DA, Dr. Panchanathan said the recognition from one's home institution is an exceptional honor. He feels grateful, and said his success is a fruit of the work of many people, and not just his own individual efforts.

"My achievements were made possible by a number of people," explained Dr. Panchanathan. "My family gave me the opportunity to pursue higher education, my students do an amazing amount of work, and my colleagues and team members collaborate with and support me every day."

Dr. Panchanathan remarked about the changes in the institute. He touched on the subject of the new specializations and programs that are now available to the students of IITM, as well as the entrepreneurship opportunities and activities open to students. He also noted how many more faculty members are now on campus. Said Dr. Panchanathan, "I find that IITM is an incredibly vibrant place to be today."

When asked about the key things he learned during his time at IIT, Dr. Panchanathan noted both independence and creativity. He emphasized the fact that students were encouraged to explore new methods and think creatively. "They promoted a lot of independence among students," he said. "I think both of these skill sets serve you throughout your life. Learning how to do independent and creative work is a very valuable skill."

While reminiscing about his insti days, Dr. Panchanathan discussed the importance of friendship, and noted how he remains in touch with his friends from IISc. "Friends you make in college," he said, "are friends for life."

Having first completed studies in the field of pure science (Physics), Dr. Panchanathan said what attracted him to Engineering was the desire to learn how to design things and better understand the physical aspects of science. He completed his B.E. in Electronics and Communication Engineering from the Indian Institute of Science in Bangalore in 1984. He then joined IIT Madras to complete his M. Tech in Electrical Engineering, then went on to enroll in a doctoral program in the field of Electrical and Computer Engineering at University of Ottawa, Canada.

ASU is one of the largest universities in America, with close to 100,000 students. When we asked Dr. Panchanathan to compare the education systems of IITM and ASU, he described the three things that make ASU unique. First, he noted the university's significant degree of educational freedom and flexibility. Dr. Panchanathan also described the interdisciplinary choices available to students, and explained that some students even chose to double major. He went on to describe how ASU has developed a culture of tackling problems by considering all aspects of an issue - technical, scientific, social, religious and so on. Dr. Panchanathan said that ASU students have the benefit of getting first-hand experience by working on live projects, not just sample ones that have been previously done. The picture of American education Dr. Panchanathan painted was one to inspire many to consider attending ASU.

On being asked about his motivation behind designing devices and technologies to assist individuals with disabilities, Dr. Panchanathan corrected us by saying that people have different abilities - not disabilities. Everyone is differently abled, and it's just the circumstance that influences what each person can do. To help us understand, he gave an example of how a bespectacled person has a different degree of an ability, and how given a dark room, even a person with perfect vision is impaired. He recounted his experience of working with such individuals and described how different sensations help differently-abled people.

Touching on his other research fields, Dr. Panchanathan told us about other projects he's been working on, including parallel processing and building structures in multimedia, among other endeavours. He provided us with a different perspective of Computer Engineering which is not limited to coding and going through database after database.

Toward the end of our interview, Dr. Panchanathan delivered a message of worldwide union to IITM. He told us of his ideas for collaborating with the other institutes across the globe. Specifically, he described the PLUS Alliance between Arizona State University (Phoenix), King's College (London) and University of New South Wales (Sydney). He noted, a union of institutions of education worldwide will be key to solving pressing global challenges. An inspiring message from an inspiring man, who we were fortunate enough to meet.

Dr. Sethuraman Panchanathan's research interests include human-centered multimedia computing, assisting and rehabilitative technologies, haptic user interface, face/gait analysis and recognition, medical image processing, media processor designs and ubiquitous computing environments for improving the quality of life for individuals with disabilities – or, as he calls them, "People with different abilities." Dr. Panchanathan is recognized as a leader in the field of human-centred computing and informatics, and has mentored hundreds of students and scholars in this field. In 2014, he was nominated by U.S. President Barack Obama as a member of the U.S. National Science Board.

Shri. V. Shankar

[1981/BT/ME]

Founder, CAMS Pvt. Ltd.

Shri. V. Shankar graduated with a Bachelor's degree in Mechanical Engineering from IIT Madras in 1981. He went on to obtain his Post Graduate Degree in Business Administration from the Indian Institute of Management, Calcutta in 1983. He founded India's largest Mutual Fund platform – CAMS – and is presently focused on his public and angel investments.

Shankar's career journey began in Pond's India Ltd. (now a part of Hindustan Unilever Ltd.) in 1983. Shankar founded CAMS (Computer Age Management Services Pvt. Ltd.) in 1988 with the objective of providing platform-based services to the Indian financial industry, and was its CEO and thereafter on the Board till 2014. CAMS totally re-imagined Mutual Fund services delivery and developed a platform that remains, till date, the largest such in India. The company employs over 6000 staff and is today co-owned by NSE and HDFC. Shankar also serves as a Board member on several other Companies.

Shankar is acknowledged for his knowledge and rich operational experience of the Financial sector. Apart from being a voracious reader, Shankar is also interested in travel, music, angel investing/mentoring, and in charitable activity. His work in the areas of finance, leadership, people management and social activities has resulted in recognition including the Outstanding Entrepreneur of the Year award by TiECON in 2012 and the Distinguished Alumnus Award by IIM Calcutta. In the last few years Shankar has also become involved with the promotion of Entrepreneurship through The Chennai Angels and TIE Chennai. Shankar is involved with charities for the old, health initiatives for the disadvantaged, education of the underprivileged, and higher education.

For his exemplary commitment to excellence in the finance industry and the entrepreneurial ecosystem, IIT Madras and its alumni are proud to confer this award upon Shri. V. Shankar.

Mr. Shankar founded CAMS in 1988 to further his interest and to cash in on the emerging IT Services boom. However it transpired that it was too early (in 1988) for the Overseas IT boom, and so he had no choice but to work with domestic firms. Somewhere in the late 90s, the company saw an opening to build a Mutual Fund platform, and they grabbed that opportunity to be part of a sunrise industry. Good execution meant that the company has become significant in size and share and hence they were able to reach the current position of a 62% market share and leader in Mutual Fund space.

Mr. Shankar is an alumnus of the Indian Institute of Technology, Madras and Indian Institute of Management, Calcutta. He said his years at IITM were the most formative experience of his life. The peer group (of outstanding calibre students), the great faculty and infrastructure and the beautiful environment were together a very potent and shaping combination. Student life was a lot more outdoor in those days as they had no phones, internet and computers. Like everyone else back then, he was involved in sport and other outdoor activities. The years in the institute were his first away from home, so they really made him far more mature and self- sufficient. On the other hand, IIM was a much shorter stint and the orientation was clearly focused on employment. The skills learnt at IIM were more related to communication, group dynamics etc. apart from some of the non-technical sciences like Finance and HR. He said his learnings at IIM were valuable in their own way but quite different in their lasting impact.

Mr Shankar has founded 2 companies and is passionate about entrepreneurship. About his association with Chennai Angels, he said, "I used to make startup investments by myself, but I soon realised that was not a good strategy since there were more opportunities in areas where I did not have personal expertise. So I joined a Network, where many of us, with complementary skills, pool together to support startups across various domains and support them in whatever way we collectively can. We have a formal process to evaluate startups."

He tells us that he feels the startup scenario is maturing. Till recently all the startups were in the tech space (e-commerce or apps) where the entry cost was low. Every entrepreneur felt that by creating an app he can sell it to Google and make a ton of money. And there were investors willing to back them.

Fortunately, this has changed. There is now a greater focus on substantive startups that are oriented towards addressing a real market need and becoming profitable at some stage. Hopefully, entrepreneurs will also be willing to work a little longer before looking for a reward. He personally feel that India needs many startups, but in the area of manufacturing and real-world services, not just apps. These may not be as glamorous but will be more likely to be successful in the longer term and definitely be more valuable to India.

Lastly, his message to the youth, "The current fashion is to start up. While I encourage starting up, I have two messages:

1. Do not do it simply because others are doing it. Do it only if you are passionate about something in particular and are willing to go through initial hardships.

2. If you do a startup, focus on building a good product and a good business. Do not focus on valuation. A good product and a good business will lead to a good valuation."

Shri. Venkat Viswanathan

[1992/BT/CE]

Founder and Chairman, LatentView Analytics, Chennai

Shri. Venkat Viswanathan graduated with a Bachelor's degree in Civil Engineering from IIT Madras in 1992, and with a postgraduate degree in Business Administration from the Indian Institute of Management, Calcutta in 1995. He is the Founder and Chairman of LatentView Analytics, founded in April 2006 along with co-founders Ramesh Hariharan (a fellow IITian) and Pramad Jandhyala. LatentView is now one of the world's largest and fastest growing digital analytics firms. It provides a 360-degree view of the digital consumer, enabling companies to predict new revenue streams, anticipate product trends and popularity, improve customer retention rates and optimize investment decisions. Venkat's career journey began as an Analyst, Chairman's Office in Essar Group in May 1992 after which he worked as a Senior Consultant for 3 years at ICRA Limited. He then moved to Cognizant Technology Solutions where he was part of the Leadership team for 7 years with their Communications Practice, before founding LatentView.

LatentView Analytics, headquartered in Princeton, New Jersey, works with Fortune 500 companies, analyzing data of all sizes and formats to arrive at actionable insights that aid decision making. Doubling in scale year on year, the company has offices in four countries, with a state-of-the-art Center in Ramanujan IT City, Chennai.

LatentView has consistently been in the spotlight for its exceptional growth and quality of work. It has the unique distinction of being featured in the "Deloitte Technology Fast 50" for eight consecutive years. Frost & Sullivan named LatentView the "Company of the Year" in Analytics in 2015. It is the only firm from India to be on the exclusive list of Advanced Consulting Partners to Amazon Web Services (AWS).

Venkat mentors budding entrepreneurs on business and data analytics, and on entrepreneurship. He has won numerous awards and accolades including the "Entrepreneur of the Year" in 2014 by CII and "CEO of the Year" in 2014 by INFOCOM. He is a member of IIT Madras Incubation Cell and an active donor member of the IIT Alumni Industry Interaction Centre. He is also a Charter member of The Indus Entrepreneurs (TiE) Chennai Chapter.

For his exemplary leadership and commitment to excellence in digital analytics, IIT Madras and its alumni are proud to confer this award upon Shri. Venkat Viswanathan.

He believes that the life on campus is a very defining time which shapes your ideas, thoughts, opinions and approach towards life in a very positive way. It is a brutal system, a trial through fire, which makes you compete with some of the very best in the country and gives you the confidence to face anything in life after that. He also believes that the campus has taught him a lot in life and this has helped him in his journey so far. The meritocracy, he feels gets imbibed in you and you learn how to value talent irrespective of background, and solely on their ability to make impact.

He feels that we do realize our strengths and passion as we go through the course here as some people really enjoy the academic challenge here, they may choose to be a professor or do a Ph.D. and pursue research or study while some people make the choice that they are not cut out for that and want to try something new. He developed a strong interest in business management and entrepreneurship. By the time he graduated, he already knew that even after pursuing an engineering career, he would move on to a career in business management.

The first year when he graduated and joined a Steel manufacturer to learn the ropes in industry, he did a role in Procurement of Engineering Equipment (EPC) which he felt was not engineering design or construction that he was trained for but more of techno-commercial negotiations. So that gave him some understanding that though you have a degree in a certain field, the way the industry will use you is pretty varied. So he made the choice after some work experience to take the commercial side more seriously and got into IIM Calcutta to pursue his MBA. He enjoyed his course there where he learned about various aspects of managing a business in a very short duration of time. He never wanted to bracket himself into one slot so he tried different things. He started his career in Finance as a credit analyst, and switched to software after a few years and then went into Analytics.

He always believed that one should pursue what interests you, doesn't matter what you are trained for or what degrees you have.

He says that in most careers you learn most on the job and only then you realize that this is the theory the professors taught. The economic or the business context is what you learn from your job. The shift from one career to another is not a very difficult shift. It is just like learning a new skill where you might fall a few times but you do rise up from those and IIT in many ways teaches us all that.

"I think every opportunity that we get, we should grab it with both hands. And that is what I did. "

After his MBA, in the first company he worked in taught him a lot of valuable lessons and he willingly took up a lot of responsibilities at a very young age. He was expected to go and meet the boards of different companies, understand their strategic challenges, look at their financial statements. He says such experiences teach us to work on our strengths while being humble at the same time. One needs to accept and understand that one can't know everything and with time people do give you respect for your competence and the way you do certain things for which they will regard and respect you. So when he started his company, he always advocated that it doesn't matter whether a person joined yesterday or a year ago, the person must be given an opportunity to express himself. They may have an idea which no one may have figured out before.

After a decade of working in knowledge based businesses, he chose to pursue his entrepreneurship dream. The process took him around six months of looking at various business opportunities before identifying an area where he wanted to start his own Company. He feels it should resonate at a deeper level where you are to commit a lot of your personal time and life to pursue your passion, so it can't be an idea you are half-hearted about. Though stating that he had less knowledge about it at that time, he found Analytics a very interesting and exciting field and blended in a lot of things where he had interests in like quantitative analysis, business aspects of how a problem is solved, computer science, or understanding about consumer behavior. The early feedback from his customers, and the validation of the business opportunity enthused him to pursue it more vigorously. Over time, he added many talented individuals to his team, and their keenness to deliver value to their customers allowed them to expand their business consistently in the next decade and achieve many milestones, and win awards and recognition from the industry.

Of the many interesting projects which his company undertook, he explained to us about one particular case in which one of the customers of e-commerce marketplace had a lot of buyers and sellers and some of the sellers indulged in fraud. So by figuring out and looking at the data, they had to predict the probability of somebody doing a fraud so that they could only police a very small proportion of the population and control the fraud, rather than taking a lot of population which could throttle the business as people would then stop doing business. Such challenging situations where creativity in picking the right data, testing, refining and implementing it yielded the appropriate solutions. He found this approach very interesting and satisfying while bringing solutions to client Organizations.

He always tells his team that the company has just started and they are still in the first kilometer of a marathon as there is immense opportunity lying ahead. The distant future will appear foggy as new opportunities in areas like machine learning and artificial intelligence is still evolving. He believes that it will always be "man plus machine" rather than being "man versus machine". He feels Automation is something which will create more opportunities for people in India as there are more things that need automation and needs to be rethought as humans are going to do a lot of those design tasks rather than the mundane tasks which they are doing today. People will spend their time more effectively. He feels that there is a lot of new stuff which is likely to happen in the coming years which will open a lot of new opportunities.

He feels that this generation of students has a much better appreciation of what they want to do and are very fortunate to be in a country which is more vibrant now than it was 25 years back. The message he wants to give us is that we have a lot of opportunities in front of us and we must not underestimate the privilege that we have got and make sure that we do justice to it. India is a country where millions of jobs still need to be created and a lot of fundamental problems to be solved. So he wants us to not squander away the opportunities that we have.

"Don't let the world define who you are. What matters most is what you believe you are capable of and how committed you are to that particular cause and how you pursue it very diligently and seriously. Whichever path you take, it can potentially lead you to success. You just have to stay on that path long enough."

Dr. P.V. Venkitakrishnan

[1989/MT/ME and 2006/PhD/ME]

Director, ISRO Propulsion Complex (IPRC), ISRO, Mahendragiri, Nagercoil

Dr. P.V. Venkitakrishnan graduated with a Masters and Ph.D. in Mechanical Engineering from IIT Madras in 1989 and 2006, respectively. He obtained his B.Tech. from Cochin University in 1983. He also holds an MBA & Post-Graduate Diploma in Production Management to his credit from Annamalai University. Currently, he is the Director of ISRO Propulsion Complex, ISRO – Mahendragiri. He started his career as Grade Scientist in 1983 in VSSC. Over the course of his career, he has contributed significantly in aerospace-related manufacturing and materials, as well as in infrastructure development. Previously, he was Deputy Director, LPSC during 2010 to 2015, and Deputy Project Director, GSLV Mk-III from 2002 to 2010. He held the post of Deputy Director, VSSC before taking over as Director, IPRC.

Dr. Venkitakrishnan is also the current National President of the Society of Aerospace Manufacturing Engineers (SAME). He was instrumental in setting up the HAL Aerospace Division in the development phase of PSLV Programme, and has contributed significantly in the developmental phase of hardware for ASLV, PSLV, GSLV Mk-II and Mk-III. He was also instrumental in initiating the establishment of the Integrated Cryo-Engine Manufacturing Facility (ICMF) at HAL, Bangalore, and in the introduction of latest technologies and practices. Under his able leadership, the Cryogenic Engines for GSLV Mk-2 and GSLV Mk-3 were developed and realized. The LAM engine for the prestigious Mangalyaan was also realised and tested under his leadership. The efforts taken by him for the indigenisation of aerospace metallic materials is noteworthy. He has various affiliations with professional bodies, including as Fellow of Institute of Engineers (India) and Fellow of Indian Institute of Metals.

Dr. Venkitakrishnan is a recipient of ISRO's individual Merit Award in 2013, Team Leader – ISRO Team Excellence Award for the years 2011 and 2015, and the ANWESHAK Award from SAME in 2009. He has numerous publications in national and international journals. He is an excellent leader and team builder with effective communication, motivational and administrative skills.

For his exemplary contributions to India's Space Program, IIT Madras and its alumni are proud to confer this award upon Dr. P.V. Venkitakrishnan.

Dr. P.V. Venkitakrishnan began his 34-year long career at ISRO as an engineer in 1983, a journey that took him from his position as a trainee, through various posts that culminated into him heading the ISRO Propulsion Centre, Mahendragiri as the Director. In regards to his days as a B.Tech student in Trichur Engineering College, he remembers having phenomenal teachers who shaped his future by instilling in him firm fundamentals of the subject. "In those days, unlike the scenario nowadays, people didn't take up the teaching profession as a last resort- when they are unable to find an alternate option for a job- but who had a passion for it, who wanted to impart the knowledge in the best way possible".

After joining ISRO in '83 through campus recruitment, he felt inclined to pursue higher studies in production engineering. So he wrote the GATE exam and joined IIT Madras in 1985. In a pleasant gush of nostalgia, he fondly recalls his time in Tapti hostel and laughs about how he and his batchmates struggled without fans in their rooms, and how those shared woes led to a successful fundraising campaign for getting fans installed in every room, for the succeeding batch. "It's always your duty to see to it that your next generation does and gets better than what you did, during your time and I believe that's the way we should address every system and practice in India". Continuing with his experiences at IITM, he mentions that a huge portion of the practical experiences and insight in the subject learnt was imparted to him during his days at IITM. "I remember, in those days, Prof Philip who taught us the subject 'Tool design' used to hold a lot of brainstorming sessions wherein he gave us a basic product design of a tool and asked us to come up with better and better designs - forcing us to think from inside and outside of the book. And different experiences like this during my stay here were, I believe, instrumental in shaping my career as I went on to become the Production Chief at ISRO for rocket launchers, propellants and mounting structures".

He returned to IIT Madras in 2002, to pursue PhD- in an interdisciplinary course offered by the Mechanical and Metallurgical departments- during the course of which, he was a resident of Cauvery hostel. Commenting on the ways in which IITM has changed since his days here, he mentions the amount of flexibility that has been introduced in the system and the increased number of facilities provided in terms of both academics and student welfare.

Speaking about his work-life in ISRO post his Ph.D, he exclaims how people often underrate the importance of maintaining healthy industry-academia ties. "Most of the knowledge, a huge chunk of it, that I have gained" he says, " came from the continued interaction with academia, the professors here and elsewhere, even after returning to ISRO. I cannot stress more on the importance of this". "People like Prof Panigrahi, Prof Vijayaraghavan and Prof Janakiraman are some of the people I interact with often." Sensing my curiosity towards the topic, he goes on to elaborate further on this; stating how, although the industry-academia interaction is widely known, it is implemented very frequently in practice. "To a large extent, professors are often aware and involved in this interaction and it is high time students are, too. They should take initiative in taking up projects in the industry

and getting involved- starting from the undergraduate years itself -which I hope will start to happen in the coming years". He goes on to mention about student satellite projects as one of the ways ISRO has attempted to maintain its ties with the student community. "Different payloads, which are important scientifically and technologically are being developed as a part of this initiative- also touching upon all forms of basic sciences, like Physics, Chemistry and even Biology - in an era wherein people of this country fret to pursue basic sciences as their principal career path- we hope to see the participations increase in the coming years".

"Basic sciences need a lot of improvement in India in terms of the opportunities that they offer the people pursuing it and we should not be surprised if they are flying to other countries for doctoral and post-doctoral positions and rather fill the dearth by providing them with better facilities, labs and adequate compensation" he remarked, in regards to one of the more serious concerns that the youth of the country is facing today, in terms of career opportunities. "People should give research as much as importance in the process of a country's development as other administrative posts. And it's the government's duty to make sure these people have better opportunities for higher studies".

And as always, when inquired if he has any advice at hand that the students could benefit from, he enthusiastically replied, saying "Put your interests and passions above everything. Pursue them. Whatever it is, however fancy it maybe, as you see fit and if it helps you grow as an individual, pursue it. And I hope in the near future, there is a system set in place, at least in IITs, to address the individual aspirations and have discussions with the student community to achieve a common ground which could help them pursue their aspirations instead of sticking to one single syllabus, one single rulebook and expecting everyone to follow that and thereby giving a stimulating environment where everyone can grow." Another point he wants to convey to us with is the importance of teamwork in the big scheme of things. "Anything, may it be research or other professions, succeeds with good teamwork in place. Fighting over patents, publications and individual credit is of not much use. People should yearn for credit towards their team, above credit for themselves. We are all going through this period wherein we should place the idea of contributing towards the nation above getting credits for the individuals".

Dr. K. Virupaksha Reddy

[1972/MSc/CY]

Founder/President, PriTel Inc., USA

*D*r. K. Virupaksha Reddy graduated with a Master's degree in Chemistry from IIT Madras in 1972, after obtaining his Bachelor's degree from the Government Arts College in Anantapur. During his Ph.D. in the Physical Chemistry Department at the University of Wisconsin-Madison, he developed pulsed and CW lasers to study rates of chemical reactions using intra-cavity laser excitation schemes. This work was widely cited, gaining appreciation from stalwarts across the field.

Dr. Reddy joined the Amoco Research Center in 1981 after brief stints at Allied Chemicals and McDonnell Douglas. It was at Amoco that his innovative talents came to the forefront and paved the way to the invention of a primer-less painting technology for composite panels by flash evaporation with nanosecond duration ultra-violet lasers. Significantly, he also invented ultra-stable direct ablation of Teflon using the same ultra-violet laser. He had the technical insight to identify and build, in 1992, the world's first commercial femtosecond fiber laser in a compact box.

In 1995, Dr. Reddy founded PriTel, Inc., to commercialize Femtosecond Fiber Lasers (FFL), in close collaboration with the Optoelectronics Research Centre at the University of Southampton, UK. In 1996, he ingeniously combined optical technologies with RF electronics to develop a mechanism to provide a stable train of optical pulses at repetition rates of up to 1200 Gbps. Over the course of 22 years, Dr. Reddy continued to innovate and maintain his focus on this niche hardware market. PriTel, Inc., now has a global customer base with 80% of its revenue derived from outside of the USA.

Dr. Reddy and his wife, Sarveswari, support the institutions that laid the foundation for his success through contributions to IIT Madras, the University of Wisconsin-Madison, and the University of Southampton in the form of endowed Chairs, endowed scholarships, lecture series, and numerous other philanthropic mechanisms. Dr. Reddy has also served as the President of the IIT Madras Alumni Association of North America from 2013 to 2015.

For his revolutionary work in the area of Optoelectronics, and for his business leadership and acumen, IIT Madras and its alumni are proud to confer this award upon Dr. K. Virupaksha Reddy.

K.V. Reddy obtained an MSc. in Chemistry in 1972 from the Indian Institute of Technology – Madras and a PhD in Physical Chemistry in 1977 from the University of Wisconsin, Madison, USA. He worked at three different corporate research labs in the United States prior to founding PriTel, Inc. in 1994. PriTel manufactures state-of-the-art test and measurement equipment for the fiber-optics telecommunications industry. PriTel made equipment can be found in every pre-eminent telecom research laboratory across the globe.

He is the President of PriTel, Inc. and he is also the current President of IITMAANA (Indian Institute of Technology – Madras Alumni Association of North America). He is also a major benefactor of IIT Madras, having funded a Chair in Photonics in the EE Department.

We got a chance to talk to him when he came to the institute to receive his DAA award, and he described his inspirational journey from a childhood in a remote village to founding a well known telecom hardware company.

We started off by asking him about his life in the institute. The first thing he talked about was the huge change he had to undergo when he first joined. Having been brought up entirely in a remote village, he had a lot of trouble speaking English and was admitted largely because of his proficiency in math and science. He had to adjust to the new atmosphere too, since most of the people were from metropolitan cities and he was one of the very few people from a rural background.

He said that they largely focused on academics, there were no extracurricular activities of any kind. They were not into sports and they didn't participate in any activities. This goes naturally with being a master's student. But the students of Dr K V Reddy's class were actually quite fortunate as the teacher to student ratio was very high.

He vividly recounted some of the fond memories as a student here. Since their batch was quite small, there were only 16 people in his class and they all bonded very well. He remarks that he is still in touch with most of his classmates, after so many years. The students in his class were also very intelligent, and it was quite a challenging atmosphere from an academic perspective.

He talked about a prank the students of his class had played on one of the days during his stay in the institute. All the students decided to wear the same shirt on one of the days. They had gotten shirts stitched from the fabric of draperies, and when they all went to class was their teacher was very surprised.

He also said that there were only 15 girls in the entire institute at that time(1970-1972) and incidentally their class had 3 girls, and all the other students were envious of their class.

When asked about his life after graduation, the enthusiasm in his voice was apparent as he began narrating how he discovered his passion.

After finishing his degree he decided to move to the United States and do his PhD there. In the United States, he met a young energetic professor who was doing some very interesting work. Since he was quite interested in the work the professor was doing, that is, building lasers to measure the rates of chemical reactions, he took it up. As for his motivation, he remarks that he wanted to do a PhD

because he was from a remote village. His mother was a complete illiterate and his father knew how to read and write only the local language, but they still decided to educate him.

" And having come from a remote village, I wanted to do a PhD, and what interested me was this young professor building lasers to study the rates of chemical reactions."

Dr K V Reddy had also taken a big risk by choosing to work under such a young 26 year old professor, as compared to someone with a lot of experience. There were concerns, like, would the professor get the tenure? But the professor happened to be very brilliant, was good enough and made the right decisions. So that's how he began his career. We then started to talk about his actual work. He explained to us what he worked on with his mentor, the professor.

His work mainly involved trying to measure rates of chemical reactions using lasers. At that time, lasers were not available commercially, so they had to build everything themselves. That was the beginning of his long journey where he learned being a chemist and began building state of the art hardware as a PhD student. His work involved many different aspects of chemistry and hardware, and it was hardly monotonous. Measuring screw sizes, building transformers and fast electrical discharges all came under the umbrella of building lasers to measure how fast chemical reactions took place. And that was definitely one of the reasons why he decided that he was more interested in research. So he started to work for a big petroleum company's research lab that dealt with photonics, since they were doing fiber optic communications as well. Fiber optic communication that was an evolving field back then is now one that enables Information Technology industry in India. All the call centers use fiber optics today, and thus photonics is a very critical industry in the Indian economy. They came up with a method of building a very short pulse laser in a very small box using optical fibers. So they devised a VCR sized box, which replaced some things that occupied a whole room, and for a fifth of the price. KV Reddy decided to commercialize what he was doing in the research lab, as he was building this laser. They were first in the world to commercialize a femtosecond fiber laser.

" So we came from the research project, to development, to commercialization, and sold to the German Telephone company in Darmstadt, who were our first customer. After a three year period every telephone company in the world was our customer."

Then, he explained how and why he started his company PriTel. The motivation to start his own company was rooted in the fact that he was always independent, for, he was away from home since age 8 and had never lived with his parents since then. He lived by himself and was able to make decisions himself. They had created a unique product for the marketplace and thus decided to go forth with it. All this was developed at the Amoco Research Centre where he had been working, and the petroleum company was very helpful in the commercialization of the product. They had a product that was right for the market and was unique in the sense that it replaced a very large over 100 kg size commercially available product with a small 10kg size one, which ensured a unique product on the market.

The work deals with specializations, what they do, is produce customised hardware products. Their contribution in the field mainly involves building the unique hardware so R&D labs can use them. They use most of their time innovating and designing new products because their ideal customer is a research lab customer, who is looking for new technology. And that's what they have to supply them with.

He then began to talk about the obstacles he faced as a small startup, on his road to success.

Networking is a very important part of growing a startup. Since he was a scientist, he hadn't really built connections worldwide so he started doing just that. One of the major obstacles was that when you go from a big research lab where there a lot of people to consult to when you start a small company you become part of in a knowledge vacuum. That was one of the things that they had to grow out of, and other institutes and other organizations and companies are the ones they had to talk to. So if they needed a specific part they could not go next door and get it, they had to call and order it and it would only arrive there the next day, so the supply of components was a major obstacle. But fortunately for PriTel, in the US there were very good component suppliers which helped them procure components within 24 hours nationally and within two days internationally.

When we discussed his views on entrepreneurship, Dr KV Reddy gave us a very nice perspective about what it takes to be an entrepreneur. Entrepreneurs are really passionate about a product, he said. They love the product, they believe in it, and they want the product or the idea to succeed. He feels that they have to be willing to sacrifice everything when they start and should be willing to take a financial hardship in order to evolve their idea from a product to a practical, commercial success. They have to be very passionate about what they are doing, so they have to be highly motivated. He gave us the very apt example of an Olympic runner, who is only able to run 100m in under 10 seconds because he loves running, and enjoys it.

He then began to talk about his mentors, and the people who had been influential in his life. To start off with, he talked about one of his middle school teachers. There was no middle school in his village, only elementary school. This particular teacher taught in the elementary school but got transferred to a middle school. So since KV Reddy and some his friends wanted to go to middle school, there was a period where they actually stayed in this teacher's house for a long time, so that they could attend middle school. He was only 9 years old at the time. He strongly feels that this really shows the commitment of a teacher, who wants his students to receive an education at any cost, and will go to any lengths to achieve this.

The next person who played a pivotal role in his life was Professor Venkatraman, here at IIT Madras. Since KV Reddy was from a remote village and they did not speak nor need to speak English, his academic proficiency could have been very easily overlooked due to his poor English. However, Professor Venkatraman saw through this and saw that he was worth admitting, and hence ensured that he got admitted. He also spoke of Professor K K Balasubramaniam, with whom he had done his research project here, who was the one who encouraged him to go to the United States.

And lastly comes the young professor Michael Berry, who he had met in the US, who was a huge influence. This professor was the one who had developed his interest in physical chemistry, as his work which involved building lasers to measure the rates of chemical reactions, was of great interest to Dr KV Reddy.

Finally, we asked him if he had a message for the students of IIT Madras. He then spoke of how you have to be passionate in all aspects of life.

"To the students of IIT madras, the message is you should be passionate about what you want to do and go after that, be it academic life, being an entrepreneur, community service or anything else you want to do."

Dr. Vivek De

[1985/BT/EE]
Intel Fellow and Director of Circuit Technology Research,
Intel Corporation, USA

*D*r. Vivek De graduated with a Bachelor's degree in Electrical Engineering from IIT Madras in 1985, and with an M.S. from Duke University, Durham in 1986. He obtained his Ph. D from Rensselaer Polytechnic Institute, Troy, NY in 1992. He is currently an Intel Fellow and Director of Circuit Technology Research in Intel Corporation. He is responsible for providing strategic technical directions for long term research in future circuit technologies and leading energy efficiency research across the hardware stack.

Dr. De's career journey began as a Graduate Technical Intern at IBM's T.J. Watson Research Center, NY in 1990. Prior to joining Intel, he was engaged in semiconductor devices and circuits research at RPI and at Georgia Institute of Technology, and was a visiting researcher at Texas Instruments. Dr. De has made pioneering contributions to circuit design at Intel over the past 20 years by leading research teams in the development of advanced circuits and design techniques for low-power and high-performance processors. Since 2013, he has served as Principal Investigator for a USD 13 million DARPA research program on Circuits for Resilient Systems (CREST). The techniques developed by Dr. De have been implemented on all Intel Core and Atom processors. He led a team that demonstrated the world's first near-threshold voltage ultra-low-power Pentium processor powered fully by a solar cell. His work on fully integrated voltage regulators implemented in Intel Core based server and client processors received an "Intel Achievement Award (IAA)", the highest corporate technical award in Intel.

In recognition of his contributions, Dr. De was appointed as an "Intel Fellow" in 2006, which represents the highest level of technical achievement within the company. He is one of only four IIT Madras alumni to achieve this distinction. Dr. De has 209 patents granted and 26 more patents filed (pending). He has published 250 technical papers in refereed international conferences & journals, and authored 7 book chapters. He has served as Associate Editor and Guest Editor for premier IEEE Journals. He is a Fellow of the IEEE.

For his exemplary accomplishments in Circuit Technology Research, IIT Madras and its alumni are proud to bestow this award upon Dr. Vivek De.

Please tell us about your days in IITM

I have always felt that I was lucky to get into IIT. I wanted to do Electrical engineering as my major. But my rank wasn't high enough that I could get into IIT Kharagpur -- this was the place where there was an opening for my rank. I didn't get into electronics which was my first choice, but I got into electrical power engineering. I really enjoyed coming to this new place, as I had never been to this part of the country. Also making new friends was quite an experience. I was not comfortable with English when I first came here, as I grew up in a Bengali medium school, so learning spoken English was a big part of my experience. To get to know the different kinds of cultures and foods is a thing in itself. One also realizes how competitive it is, academically. Everybody is extremely smart and talented. So, it was an interesting experience to strive to become as good as possible. The courses were challenging and the professors were excellent. One of the things that struck me about the culture here is that you don't have to focus on academics. One can pursue a variety of interests beyond academics. That was encouraged and valued by peer students and teachers. I was very much interested in music. I used to sing pretty well and I was a part of the music team of the campus representing IITM in Mardi Gras. It was an all-round experience and I think that became very important later on in my life. The academic aspect will get you somewhere but the leadership qualities will help you build a career and actually make a difference in whatever field you choose. These leadership qualities cannot be studied. They are acquired in your college years when you get opportunities and you take them on to lead situations. These soft skills, including communication and persuasion skills, become really important as you grow in your career. I really value the foundation that I got from my 5 years here.

Can you please share any fond memories from your college days?

I have many fond memories. The best part of my adult life is the 5 years I spent here. It was a lot of fun. In those days, attendance was not mandatory, but we had to ensure that we take care of the exams. Some of us didn't attend classes but somehow managed to get good grades. You have to learn all by yourself through other people's notes and books. You can pretty much pick up things on your own without the concept being taught to you. Later, while doing Ph.D., nobody tells you what to do. Even though there's an advisor, you have to figure everything out on your own. Learn new things by yourself, read new papers, do things by applying your own knowledge. What you learn during Ph.D. is how to do independent research. Although self-learning comes in handy then, it is good to attend the classes too because then you actually get to know the subject.

Most of my fond memories are around Mardi Gras. Our regular life was happy. We attended classes and had various extracurricular activities, like music. Going to the beach was a fun experience. Mardi Gras used to be the best time. Some famous celebrity artists would come to perform in Mardi Gras. Hema Malini with her Bharatnatyam, Ravi Shankar, Zakir Hussain are some of the famous artists who performed at the event. The events used to be thrilling and entertaining. On regular days, we used to go for movies to Mount Road. In the first year itself, we watched around 55 movies. We didn't miss having internet and movie streaming.

As we didn't have personal desktops, coding used to be a bit tedious. We learned Fortran using punch cards. A punched card or punch card is a piece of stiff paper that can be used to contain digital

information represented by the presence or absence of holes in predefined locations. There will be a machine like a workstation or mainframe and you will have access to those through a computer terminal. It won't have any processor in it. One just sends the program through the punch card connected to the machine. That's how the program is submitted and gets executed. You punch codes in the cards to indicate what the code is. There used to be a deck of cards, and each line was on a separate card. We take that sequence of cards to submit the program to the main terminal at the P. G. Senapathy Centre, after which, you will get the result after a day. If there is a bug, there won't be any right output and you will have to repeat the process again. That was a good motivation to get the code right the first time.

What changes have you observed in the institute?

The most striking change is that the opportunities have increased. When we finished our undergraduate program, we did not have many opportunities. To pursue advanced studies, there were not many colleges or universities in India. But now, there are many opportunities in India itself. That's why the students after graduation are not looking forward to going abroad. They have so many opportunities in India itself, for advancement. That changes the mindset. A lot of them have an entrepreneurial bent of mind. There is a lot of support for entrepreneurial things. None of us became entrepreneurs in our time, we became professionals or executives. We see a lot of entrepreneurs now, which is needed to support the economy and create more opportunities.

What was your motivation to choose core and apply for a Ph.D.?

In my final year, due to some professors, KN Bhat and Ashok Jhunjhunwalla, I got interested in more advanced studies in semiconductors and electronics. That motivated me to get specialization in those areas. I started liking it more as I explored deeper.

My goal was to become a professor. I like teaching, I like interacting with students because they provide a fresh perspective. I like the environment of the university, teaching, research, etc. So that motivated me too.

Can you tell us something about collaborations with various universities like Georgia Tech, etc?

Intel Labs encourages engaging with universities from all over the world, in areas where there is a common interest in research and collaboration. Over the years, I have worked with many professors and students internationally as well as from the USA. I engage with them, closely collaborate with them and jointly work with some of them. In Intel Labs, being an industry research lab, we are looking to do research for specific products that we are developing in the future or new capabilities that the industries need to advance. We are looking at challenges and things that make our products a reality in a few years. So that's why we start working now. There is a question of what is going to happen 10 years from now. For that we engage with universities because 10 years out, the problems are less defined, more open-ended and students and professors have the right lack of constraints. They are not in a hurry to create an impact on the product. So, they can really pursue those kinds of challenges in a pure way. They can really look after long-term problems without being constrained by any financial and commercial issues. We work with them to understand that and as time passes what was earlier 10 years becomes 5 years. Then we internalize some of the results and start working

specifically with our product. So for that sort of a pipeline of very long-term research, we work with universities and with some industrial collaborators to develop the technology that is going to make compelling products.

Can you tell us more about your patents and publications?

In a research lab, we are in the business of invention. In an industrial research lab, you are working in a team. As you invent new things and new ways, you want to protect the invention because you have put in a lot of effort inventing it and you don't want it to be free for everyone to use. Intel has invested money and it's a business so they want to make sure that they have the rights to the Intellectual property. So in a research lab, we invent things. We come up with new ways to do things and they are much better. The good ones are patented by Intel. We, at Intel, encourage publications. One of the beliefs we have in the lab is that to solve sufficiently challenging problems, it's not enough to just have a few people working on it. To make real advancements, more people need to work on it. We need to have people working on it from different perspectives with different skill sets and backgrounds. In Intel, we only have so many people who can work on that. That's why we release the publications in technical conferences and journals so that other people in the field get an exposure to these. It's all a series of small steps. We take the small step and provide this exposure for them to figure out the next small step. It's all about positive feedback. You build on this advancement as a community as opposed to in an isolated group. This we have found out over the years to accelerate the pace of innovation. That's why we publish a lot.

What does it take to be successful in research?

You need to like doing what you do, in your chosen profession. You should like the work you do, so much so that even if you don't get paid you would be happy to do it. Everyone has their own calling, they have to figure out what it is. The thesis in your Ph.D. doesn't need to be groundbreaking. The point is to define the problem independently, to figure out the challenges and the way to go about it all by yourself, while leveraging knowledge, literature and learning how to do independent research.

First, you have to like doing what you do. Second, you have to be completely unafraid of failures. One of the things you realise when you are doing industrial research is that most of the ideas that you and others get are bad ideas. If you get a problem you get a lot of ways to solve the problem. But most of them don't work. It looks like a good idea, but by the time you evaluate it, figure it out, you realise that it won't work. 90% of the ideas are like that. The problem is very challenging and there are only 2 or 3 solutions.

That's why, you need to be able to take risk, in order to pursue something. There is no guarantee of success and it might be a complete waste of your time and year and at the end of it, you may have nothing to show. As a researcher, you have to internalize that. In Intel, we don't reward successful ideas, but we reward learning. That is if you tried something for a long time and if it did not work, that still means you learned something, and the next step will be figuring out why and how it didn't work. Then the work is documented and published. It is then shared with others. Now, suppose people try this in an actual product. They will try it and release it in the market and the product will fail because they don't know it doesn't work. So you are actually preventing these mistakes from happening or rather preventing these bad ideas from getting into products and markets by sharing information

ahead of time. Telling somebody what not to do is as useful as telling them how to do it. So if you produce something that is negative, out of a research, it is as valuable as inventing a new product. So in research, you need to have patience, and figuring out what doesn't work and why it doesn't work is as valuable as the solution that worked. In research, you have to try, and go where it leads you and accept it if it doesn't work. So risk taking, trying and being unafraid of failure is important.

Could you tell us more about your journey after IIT?

After IIT, I went for my masters and Ph.D. I wanted to become a professor. I wanted to do research and teach. In India, there were not many opportunities in those times. I wanted a tier one university to join and there were no open positions at that time. So I worked as a post-doctoral, research associate. I love doing research, I didn't care how much I was paid. I was enjoying the work. I also looked for a position for faculty. So for 4 years I tried and didn't get a good offer from any top university. I gave up as I realised that I can't do post-doctoral for the rest of my life. So the next best thing was to go into an industrial research lab. At that time, in the US, there were only 2 established research labs, Bell Labs and IBM. I got an offer from Bell Labs. Intel was a small research facility then, just starting off with a few people. I thought it was a good opportunity, where there will be more freedom to grow and learn. That's why I joined Intel and I have been there since, and it has grown a lot since.

Star Donors

January 2017

Aricent Technologies (Holdings) Limited

towards
National Program on Technology Enhanced Learning

February 2017

Cholamandalam Investment & Finance Company Limited

towards
Merit-Cum-Means Scholarship Endowment

Chola
Enter a better life

March 2017

J. Mitra & Company Pvt. Ltd.

towards
Healthcare Technology Innovation Centre

J. Mitra & Co Pvt. Ltd
a vision to serve mankind

April 2017

American Express Services India

towards
IIT Madras Incubation Cell

AMERICAN EXPRESS

May 2017

Dr. A M Singhvi

towards
Dr. Singhvi Chair professorship

Since my first job in 1965, I have been learning about better management tools to deliver improved results in my assignment with some global corporations in many countries. In later stages I was made to focus on Good Corporate Governance and Competitive Excellence. However I read that India continued to suffer from some scams. I also learnt that on the one hand employees were goaded into improving quality, cost, delivery etc, the management was involved in a scam at the national level. Even senior employees salary was paid part under the table and many denied retirement benefits on this component of salary under their HR policies. These contradictions did not send the right signals for students mindset. It is in this background that I made up my mind to contribute my savings for focused teaching on Good Corporate and National Governance along with mindset and tools for Competitive Excellence to our future managers and leaders, the students in engineering and management institutions in particular. IIT Madras (and Roorkee) are some of the right places for me to share my savings and make things happen in the right direction, and so I made the endowment. I wish them quick success in making our engineering and other students more competent in managing resources in this globally competitive world as some of the Alumni members have already demonstrated Overseas.

Dealing with IIT Madras team was a great pleasure because of its efficient and pleasant handling of the endowment from an average citizen, and thus earning deep respect from the contributor. I wish them great success and remain with warm regards to alumni, students and Professors at IIT Madras.

Ace Micromatic Group

July 2017

towards
AceMicromatic Chair Professorship Endowment

Robert Bosch Engineering and Business Solutions Pvt. Ltd.

August 2017

towards
Robert Bosch Centre for Data Science and AI

ABB India Limited

September 2017

towards
Center of Battery Engineering

October 2017

Sant Rajinder Singh Ji Maharaj [1967/BT/EE]

towards
Sant Rajinder Singh Ji Maharaj - Adjunct Chair &
Sant Rajinder Singh Ji Maharaj - Scholarship Endowment

Thank you for this honor to be named star donor for October 2017 for my donation to IIT Madras towards "Sant Rajinder Singh Ji Maharaj–Adjunct Chair" and "Sant Rajinder Singh Ji Maharaj–Scholarship Endowment." They are a token of my appreciation to IIT for the strong foundation the university has given me during my years in the Electrical Engineering program leading to my B. Tech degree in 1967.

My education at IIT provided the physical and intellectual basis of my life, setting me on a successful twenty-year career in science, computers, and communications. My IIT training also contributed to the spiritual aspect of life. Few people think of scientific training as having a spiritual element. However, the training at IIT Madras in the scientific method formed the basis of my spiritual quest to find answers to the mysteries of life. Having a deep spiritual heritage from my family, my IIT training helped me to use the scientific method to test the hypothesis of spirituality. Taking the concept of the laboratory, I experimented within the laboratory of my own human body to find out if there is more to a human being than just a body and mind. I was able to experience firsthand that this world is part of a far greater creation and that the physical light and sound of this universe is but a reflection of a spiritual Light and Sound that reverberates within each. The method of testing was through meditation on the inner Light and Sound, leading me to explorations of higher realms more ethereal, more beautiful, and filled with a joyous love, happiness, and peace beyond any experienced in this world.

Combining my scientific background from IIT Madras with testing the hypothesis of spirituality through meditation, since 1989 through Science of Spirituality I have been sharing this technique with anyone who would like to try it. It is my hope and prayer that this premier institution, IIT Madras, recognized all over the world as one of the best science and technology universities, continues as a leader to give students for posterity the same golden opportunity that I received. May this donation contribute to the ongoing dedication of IIT Madras to make this world a better place for all.

November 2017

Aricent Technologies (Holdings) Limited

towards
National Program on Technology Enhanced Learning

December 2017

Tata Consultancy Services Limited

towards
Development of a Dynamic Traffic Congestion
Prediction System for Indian Cities

January 2018

Aricent Technologies (Holdings) Limited

towards
National Program on Technology Enhanced Learning

February 2018

Saipem India Projects

towards
Implementation of Solar DC Inverterless System in
homes and school

March 2018

HT Parekh Foundation

towards
International Centre for Clean Water Research

I wish I knew these when I graduated

Kartic Vaidyanathan (BT-ME '96)

Director of Operations, Cognizant

February 3, 2017

Value of software and similar IP created as a product within a business, and by extension to the national and international economy

Emeritus Prof. Gio Wiederhold

Computer Science, Electrical Engineering, and Medicine, Stanford University

February 7, 2017

Building an Entrepreneurial Ecosystem

Prof. Dhirendra Shukla

Building Startup Ecosystem, Canada

February 14, 2017

Career Reflections: From the Lab to the Boardroom

Aravind Immaneni (BT-CH '92)

Executive Vice President Chief Operations and Technology Officer, Fifth Third Bancorp

February 17, 2017

Leadership Lecture Series

Talks in 2017

Investing. It's Role in a person's life.

Sankaran Naren (BT-ME '87)

Executive Director & Chief Investment Officer (CIO), ICICI Prudential Asset Management Company Limited

February 10, 2017

GAVESHAN

K Ramachandran (BT-ME '66)

February 22, 2017

Artificial Intelligence - Intelligence Software Agents (ISA) and its application

Dr. Jagannathan Iyengar (MT-EE '76)

Professor of Computer Information Systems in the University System of North Carolina (NCCU)

February 28, 2017

Journey of an entrepreneur

Roopa Karemungikar (BT-CE '95)

Co-Founder, Altura Consulting

March 3rd, 2017

Teaching 80,000 people with 1 laptop & finding other good problems to solve for IITians

Tanmai Gopal (DD-CS '12)

Head Engineering & Co-Founder Hasura

March 31, 2017

LPG @ 12K Feet: How Attitude Overcame Altitude

G Ramkumar (MT-CE '81)

Former Executive Director Indian Oil Corporation

August 4, 2017

Leadership Myths & Realities— How to Become a Good Manager

B S Gilra (BT-CH '67)

President, Orient Paper Mills (CSU)

August 24, 2017

A Career in Research: It is NOT Passe

Dr. Anand Sivasubramaniam (BT-CS '89)

Distinguished Professor of Computer Science and Engineering The Pennsylvania State University

March 31, 2017

Architect Corner: Smart City Accelerator – Social Venture

Bhagvan Kommadi (BT-AE '93)

Founder–Architect Corner

April 7, 2017

Transition to Turbulence

Prof. V Kumaran (BT-CH '87)

Senior Professor Indian Institute of Science

August 18, 2017

Are you looking for a Job or a Career after IIT is the question

Prof. Ravikumar Bhaskaran (Ph.D-CE '76)

Managing Director Technology Foundation & Hon. Adviser Ext. Affairs IIT Gandhinagar

September 1, 2017

A Tale of Two Talks or How I was unable to make up my mind

Sriram Raghavan (BT-CS '98)

Director, IBM Research–India

September 8, 2017

Defence, Nuclear and Space Technologies—India's Strategic Sectors—A Briefing

A K Sinha (BT-EE '69)

Former Senior Scientist, ISRO GOI & Ex-Director [R&D], BVUCOE

September 15, 2017

Better learning opportunities for the under served in India's schools— Agastya experience

K Thiagarajan (BT-CH '74)

COO—Agastya International Foundation

October 20, 2017

Wadhwani Institute for Artificial Intelligence: Independent Not-For-Profit Research Institute for Social Good

Dr. P. Anandan (BT-EE, '77)

CEO—Wadhwani Institute of Artificial Intelligence, USA

November 6, 2017

40 years of Diabetes Research: The story of my journey

Padma Shri Dr. V Mohan

Chairman & Chief of Diabetology
Dr. Mohan's Diabetes Specialities Centre
President & Director
Madras Diabetes Research Foundation

September 20, 2017

Journey from IIT Madras to an Antarctic expedition

Purvi Gupta (DD-BT '09)

October 16, 2017

Distributed R & D – Experiences of an accidental entrepreneur

Balasubramaniyan S M (MT-EE '78)

Chairman and Chief Mentor
Digital Core Technologies Pvt Ltd

October 27, 2017

Don't follow your passion! and other learnings from an Accidental Entrepreneur

Karthik Hariharan (BT-MT '91)

Serial Entrepreneur
currently with Apple's
Health Software Team

October 23, 2017

Addressing the Computational Challenges of Ubiquitous Analytics and Learning

Prof. Anand Raghunathan

Professor of Electrical and Computer Engineering at Purdue University & C R Muthukrishnan Distinguished Chair in CCBR

January 6, 2017

Lakshmi Raman Memorial Lecture in Mathematics
Hyperbolic Geometry and Chaos in the Complex Plane

Prof. M J Mahan

TIFR
January 20, 2017

Travel Grant

Travel Grant program is very popular amongst Institute students and Faculty, and is one that impacts the students directly by
helping them financially to participate in International Conferences to present research papers, as well as participate in competitions, workshops, summits, exchange programs, internships, etc.

In the year 2017-18 , 267 students & 22 faculty benefitted through the Travel Grant program

Other Lecture Series

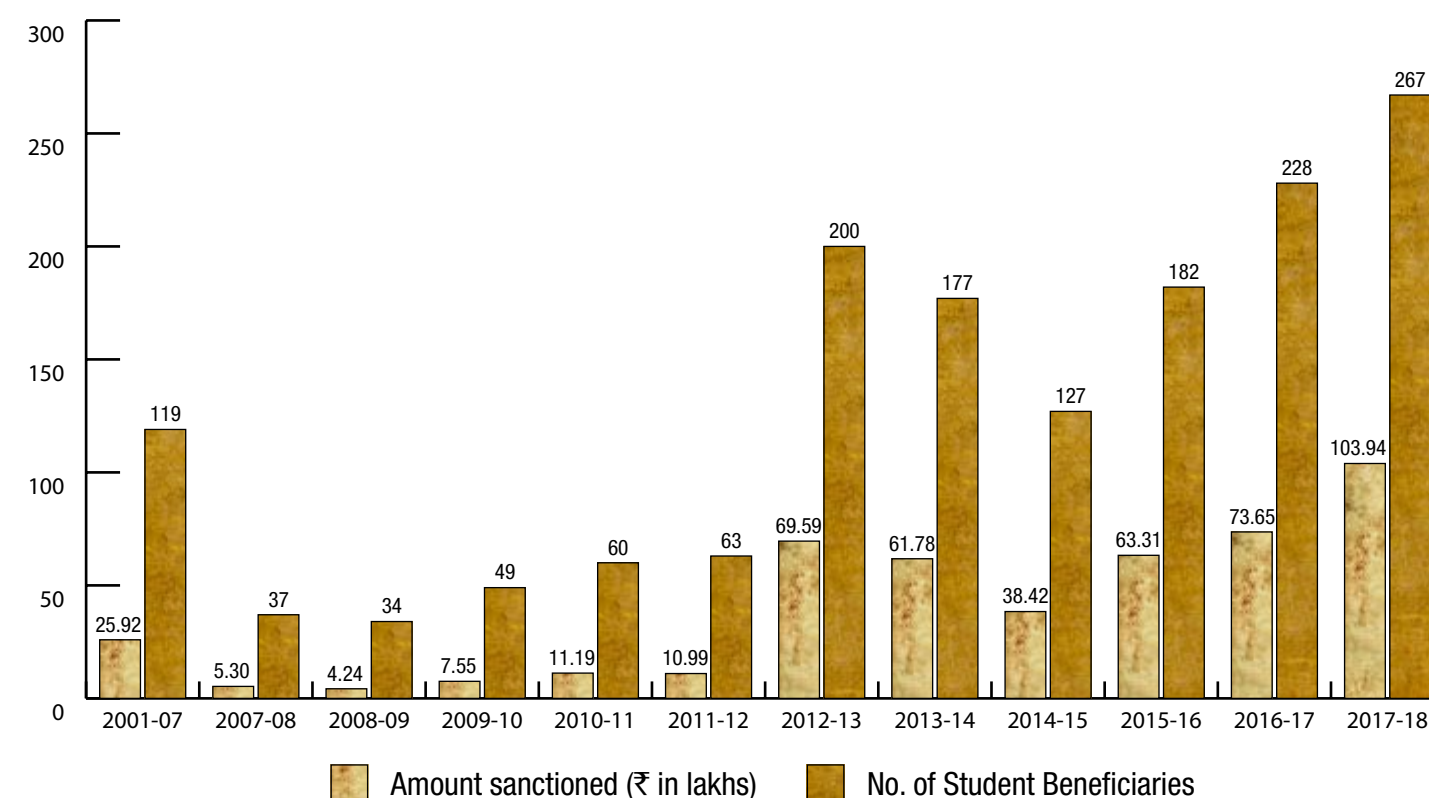**Extra Mural Lecture— Future of India**

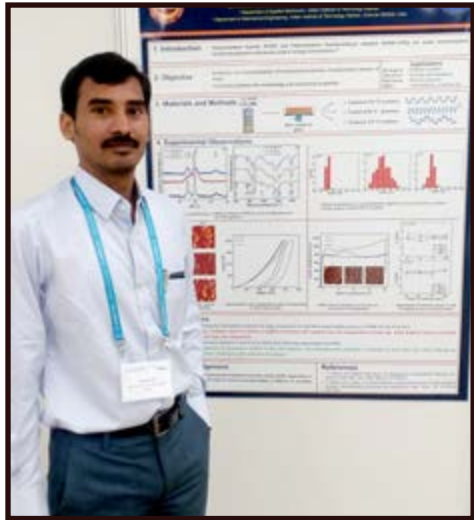*Deepak Parekh*

Chairman, HDFC

April 12, 2017

Exploring the Ultimate Limits of Miniaturization and Global Opportunities in Nanoscience and Nanotechnolgoy

Paul S. Weiss

California NanoSystems Institute and Departments of Chemistry & Biochemistry and Materials Science & Engineering, UCLA, Los Angeles

May 5, 2017

Chart data:

Year	Amount sanctioned (₹ in lakhs)	No. of Student Beneficiaries
2001-07	25.92	119
2007-08	5.30	37
2008-09	4.24	34
2009-10	7.55	49
2010-11	11.19	60
2011-12	10.99	63
2012-13	69.59	200
2013-14	61.78	177
2014-15	38.42	127
2015-16	63.31	182
2016-17	73.65	228
2017-18	103.94	267

Amount sanctioned (₹ in lakhs)   No. of Student Beneficiaries

Suresh G (PH12D058)

Emerging Polymer Technologies Summit, Melbourne, Australia

Poster Presentation

Yashwanth Sai B (EP14B036)

Summer Internship, CERN Geneva, Switzerland

"

I am, Suresh. G, a research scholar from the Dept. of Physics working in the area of polymer composites, would like to summarize my recent foreign conference visit to Melbourne, Australia. I was fascinated by the innumerable applications of polymers and their derivatives in the field of science, engineering and technology. Inspired by this, I tried to develop and understand mechanisms of a multiferroic flexible polymer composite material system for high energy density storage and magneto-dielectric applications during my Ph.D. The experimental observations and results were accepted by the research community in the form of a research article. I was interested to show my findings to the polymer research experts hence

applied for Emerging Polymer Technologies Summit 2017 held at Melbourne. I presented my research work titled 'Improved Dielectric and Ferroelectric Properties in Cobalt Ferrite Doped PVDF Multiferroic Polymer Composites' as a poster at the summit. I could clarify the queries and receive fruitful suggestions from the fellow researchers. During the visit I interacted with experts in this field and inspired by the showcases of the latest and exciting innovations taking place around the world.

During the visit, I got the chance to visit the labs of Prof. James Macnae, leader of the Applied Electromagnetic and Radiation Physics Research Group at RMIT University. I have discussed the feasibility of developing a prototype magnetic field sensor from my research findings. I thank Prof. James for his appreciation and positive response to my ideas. His suggestions would certainly be helpful in developing sensitive field sensors for geophysical exploration applications. The discussions with Prof. Paul Dastoor and Dr. Madhu Bhaskaran inspired me to think in new dimensions of research requirements of global issues such as emerging fields of flexible organic electronics. The work related to PDMS/ Carbon nano-fiber composite presented by Dr. Shuying Wu, was very much relevant to my work and also very informative. I got new mechanisms responsible for improvement of stretchable strain sensors that I would try to implement in my composite system. I can say that this summit was a perfect platform for academia and industries to share their successes and difficulties which can trigger ignition of new ideas to young researchers.

In conclusion, with lots of both professional and personnel outlooks, I was benefitted from this visit with new ideas to implement and improve my research quality. With due respect of that, I am obliged and thankful for the help provided by the IIT Madras Alumni relations office to achieve this unforgettable memory.

"

Collisions in LHC produce 40 million events per second. That's about 1TB of data per second. We neither have computation powers to store that much data nor are we interested in all the events. Most of the events that are produced are known events. So we only need to accept and store the data or events that are "interesting". This is where triggers come into the picture. Triggers are coded to select only the events that we are interested in storing and analyzing. CMS has L1 (Level-1) trigger and High Level Triggers (HLT). My internship was based around HLTs.

Events can be talked in terms of rate. The incoming data from the collisions is 40 MHz. L1 triggers reduce this rate to 100 kHZ. HLT farms further reduce the rate to 1 kHz and this data is then stored on disks for offline reconstruction and analysis. This reduction can be done by putting "cuts" on the incoming particles. These cuts can be on a wide range of parameters

like the transverse momentum of the particle, charge of the particle, mass of the particle and even on the derived quantities like pseudo-rapidity, etc. By combining these parameters we can build triggers or "seeds" which accept events according to our requirement.

There are a lot of Physics Analysis Groups (PAGs) in CMS collaboration like B Physics, Higgs, SUSY, etc. Each group searches for different decays. But our HLT "rate budget" is only 1 kHz. This is divided among all the groups. Each group proposes the seeds of their requirement such that it does not exceed their allotted budget.

I was a part of B Physics group. I helped in developing the HLT paths for Bs ↠ Jpsi/phi ↠ mumu decay, a beyond SM decay. The first part is the development of a strategy to probe the data, i.e., what data to collect and what to reject. The two major constraints on the HLT paths are rate and efficiency. We need to see that the rate of the path is within the rate budget and its efficiency is not too low. Thus, we have different strategies in place to probe the data. Following these strategies, HLT paths are created using ConfDB GUI. There are different parameters available to put a cut on. We can ask for minimum Pt, track, mass, etc. There were some strategies already in development.

The next part is to see that, we are within the rate budget. I used the official recipe available in the Twiki pages to calculate the rates. This involves using CMSSW to setup the workspace to run the code and using CRAB to run the HLT paths on the data collected. I used the ConfDB GUI to scan a range of values for different parameters to see how the rate changes. We should also see that the overlap between the particles shouldn't be high, thus I used a recipe to calculate the overlaps. The efficiency studies were carried on by another person simultaneously. We further need to see that these paths are fast enough while collecting the data. I did the timing studies on these paths to produce the necessary timing plots. Final paths were chosen after assessing the rates, efficiencies, overlaps and timing studies that we calculated. I also did the final integration tests that are needed before submitting a JIRA ticket.

My major takeaways from this internship was better understanding of the working of HLTs, having a first-hand experience of the life at CERN and understanding the workings of CMS as a whole to a better extent. I got a good peek into how the strategies are developed.

Varun Praveen Kumar Jain (MS11D201)

Healthcare Operations Research PhD Summer School
INFORMS Healthcare Conference
Enschede, Rotterdam, Netherlands

Paper Presentation

Nitin N Navali (CE15B041)

Czech Technical University, Prague

Student Exchange Program

"

I am Varun Praveen Kumar Jain, a PhD student of Operations Management at the Department of Management Studies, IIT Madras, working under the guidance of Dr. Usha Mohan. I attended Healthcare Operations Research

Summer School (by CHOIR), University of Twente, Enschende, Netherlands, July 21-25, 2017. I presented my research work titled "A Simulation Based Neighborhood Search Algorithm to Schedule Patients at a Multi-Facility Healthcare Diagnostic Center" at INFORMS healthcare 2017 conference, held at Rotterdam, Netherlands, July 26-28, 2017.

My doctoral research concerns patient scheduling, with particular focus on scheduling Health Check-up patients alongside other category of patients at a multi facility diagnostic center. Towards this I have developed couple of mathematical models for different settings.

Healthcare Operations Research Summer School was held at, University of Twente, Enschende, Netherlands, by Center for Healthcare Operations Improvement & Research (CHOIR). 40 PhD scholars from all over was the world were shortlisted for the summer school. Given my research area, the topics covered in summer school provided me with good exposure and different perspective to use OR techniques applied in Healthcare. Amongst other sessions, session on MDP in Medical Decision Making by Prof. Brian Denton (INFORMS President) was more relevant and insightful. I have referred to his work for my research and was good opportunity to discuss my work with Prof. Denton. Discussion with other professors helped me further strengthen my doctoral research. Summer school was also a great opportunity to work and network with researchers across the globe and to exchange research ideas and build lasting relationships.

INFORMS healthcare 2017 conference was held at Rotterdam, Netherlands. INFORMS healthcare conference is the one most highly regarded conference for the discipline of Healthcare Operations Management where top researchers culminate for sharing their knowledge. It turned out to be a great opportunity for me to network with researchers with different background and interests. I personally had the opportunity to associate myself with few PhD students and professors who work in a similar research area and I got few critical inputs from them after my oral.

Plenary sessions were was the highlight of the conference delivered by the likes of Prof. Dimitris Bertsimas, Operations Research Center, Massachusetts Institute of Technology (MIT); Prof. Brian Denton, Department of Industrial and Operations Engineering, University of Michigan; Dr. Eric de Roodenbeke, CEO International Hospital Federation; Erik Gerritsen, Secretary General at the Ministry of Health, Welfare and Sport, Netherlands. Most of the talks were aligned towards use of OR in Healthcare and its future. In a nut shell, the knowledge I gained from this trip is highly valuable.

I thank IITM Alumni for funding part of the expenses incurred during my travel and this shall help me mould my research to a good shape. Also, I am ever grateful to the Alumnus who generously supported my visit.

"

I am Nitin A Navali, a 3rd Year BTech Civil Engineering student. Tall structures and monuments have always enthused me to choose Civil Engineering and in #1 Technical Institute of India, I have always wanted to make the most out of my education here at IIT Madras, be it Academics or Co- Curricular. I was selected for the exchange program for the spring 2017 Semester (February 2017 - May 2017) at the Czech Technical University, Prague. I have taken an active part as a coordinator in CEA fest, a civil engineering department annual technical festival, and also won many competitions in my first and second year.

The exchange program was an opportunity to become a part of a different culture, meet people from around the world and explore. During my exchange, I learned a lot of things cooking, traveling to new countries, managing expenses, opening up to people, new languages, and cultures from different places, etc. I participated in a lot of cultural activities there and was also instrumental in country presentations. I was able to network with people from around the world. Also, I used the opportunity to tell people about India and also IIT Madras. After coming back from the exchange I have written an article for a magazine and a blog in WordPress, so that people can get to know about my experiences there.

The courses that I took during the exchange semester were: Construction Management, Prague Architecture and field trips, Environmental Engineering, BIM Revit, Social Science, MATLAB for simulation, Czech Cultural Course.

One of the most difficult thing during the exchange was to manage my expenses and sustain in Europe at the lowest cost possible. Coming from a middle-class family, the travel grant will be of a very great help. Hence, I request you to kindly approve my travel grant request.

I would like to thank the support of the alumni of IITM for supporting students like me who want to explore new opportunities that the institute provides. I would definitely give back to the institute as alumni once I graduate as I sincerely believe that such wonderful opportunities like an exchange should be accessible to everyone.

Somisetty Neelkamal (ME14B063)

RWTH AACHEN University, Aachen, Germany
Internship

"

This summarises the study performed on Hollow Cone Gas Jet Injection using virtual sources. It involves the study of the Mach disks formed due to the Under- expanded gas jets. CONVERGE software is used to create a Hollow Cone Gas Jet Injection model similar to experimental model. Paraview is used to visualise the results after the simulations. Four approaches have been developed as inputs to the virtual source using Mass, Momentum and Energy balance. Simulations with these virtual sources are performed and compared with Large- eddy- Simulations (LES), Reynolds Averaged Navier Stokes (RANS) and Experiment models. The important parameters relevant to the study which include Axial penetration, Radial penetration, Momentum flow, Mass flow are used to compare and validate the approaches.

Compressed Natural Gas (CNG) engines with direct injection systems are a promising technology for future internal combustion engines especially as the emission norms become stricter. However the direct injection of CNG or any gaseous fuel is not fully understood due to complexity arising from the compressible nature of gases and resulting shocks in the narrow gas passages in the injector. Experiments and Numerical simulations have been performed with the hollow cone injector in order to qualitatively observe gas jet formation and sub- sequent mixing. But these simulations with the real nozzle source in the model makes the simulations computationally longer and expensive. This motivates a detailed study on modelling a virtual Nozzle source by studying the behaviour of gas after injection.

The simulation setup used in this study consists of a Virtual hollow cone gas injector at the position of first Mach disk which also has shape similar to Mach disk. Using the conditions before Mach disk or at exit of real nozzle, helium gas is injected with certain velocity and temperature into a cylinder block of 75 mm internal diameter and 82.5 mm height initially at 1-atm pressure and 300 K temperature. The species present initially are Nitrogen and Oxygen at standard atmospheric proportions. The valve is taken to be fully opened with a lift of 350 micron. Four approaches have been developed as inputs to the virtual source using Mass, Momentum and Energy balance. Mach disk approach is developed using parameters just before Mach disk. Pseudo-diameter approach and Adiabatic Expansion approach are developed using parameters at exit of real nozzle. Pseudo-diameter approach involves Mass and Momentum balances whereas Adiabatic Expansion approach involves Mass, Momentum and Energy balances. One more approach is direct values approach in which we directly input the parameters values which are after Mach disk.

I consider this internship to be a turning point in my career. It transformed me from a student with strong theoretical foundations to a researcher who wants to contribute something to

make the world a better place to live. It was my first experience of research and has definitely inspired me a lot. I am currently doing my final year B.Tech project on Acoustics of a muffler which is based on many things I learnt from the internship. I have also decided to pursue a PhD in Automotive as I feel that I have found the right balance between what I'm good at and what I wish to do in my life. In short, it has created a new path for my career which I am delighted to pursue.

I would be very thankful to the Alumni if I would be able to get a travel grant for the internship. This is a very good initiative by the Institute and its Alumni for supporting to the students to have an experience of international facilities before they graduate with their degrees. There would be many other students like me who would also benefit from this initiative. This would help students who get an opportunity like this but find it difficult due to financial constraints. I would always remain grateful for this support and would definitely contribute back for this when the possibility arises.
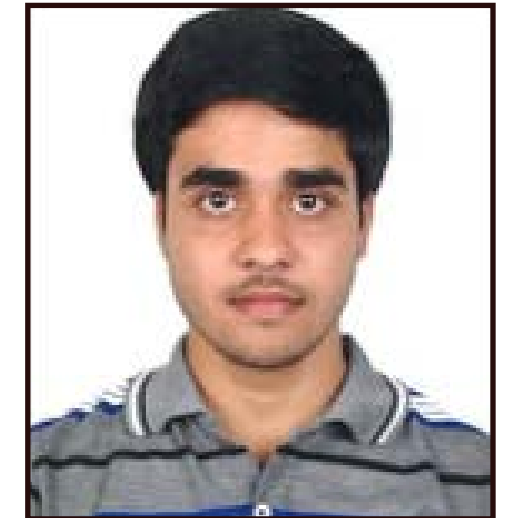
Harshit Dohare (EE13B078)

Czech Technical University, Prague
Student Exchange Program

"

I am Harshit Dohare, a 5th Year Dual Degree Electrical Engineering student. I have always wanted to make the most out of my education here at IIT Madras whether it is Academics or Co-Curriculars. I was selected for the exchange program for the spring 2017 Semester (February 2017 - May 2017) at the Czech Technical University, Prague. I have taken part in a lot of Tech Soc events, have also been a coordinator and Core in

Shaastra for Envisage, the only student run techno entertainment show in India.

The exchange program was an opportunity to become a part of a different culture, meet people from around the world and explore a different academic system. I learnt a lot of things during my exchange like managing expenses, opening up to people more easily, learning new languages, meeting new people and learning about cultures from different places, etc. I participated in a lot of cultural activities there and was also instrumental in country presentations. I was able to network with people from around the world. Also, I used the opportunity to tell people about India and also IIT Madras. A few of my friend from Czech Republic were impressed and are coming to IIT Madras to spend one year on exchange program!

The courses that I took during the exchange semester were: Wireless Technologies and Sensor Networks, Multimedia Technology, Data Networks, Business Economics, Philosophy and Czech Language.
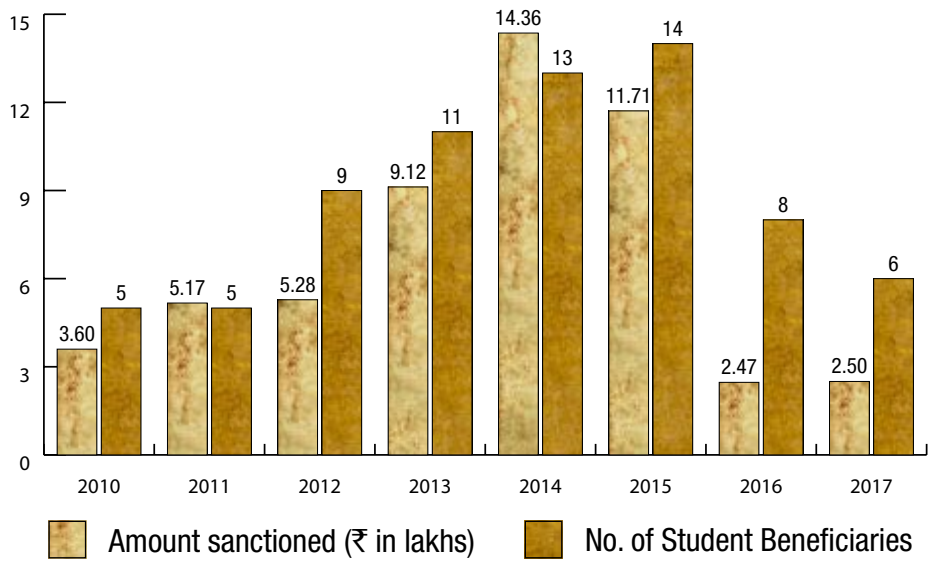
One of the most difficult thing during the exchange was to manage my expenses and sustain in Europe at the lowest cost possible. Coming from a middle class family, the travel grant will be of a very great help. Hence, I request you to kindly approve my travel grant request.

I would like to thank the support of the alumni of IITM for supporting students like me who want to explore new opportunities that the institute provides. I would definitely give back to the institute as a alumni once I graduate as I sincerely believe that such wonderful opportunities like an exchange should be accessible to everyone.

Boeing Travel Grant

Boeing Travel Grant can be used for travel expenses connected with presenting a paper or project at an international conference related to Aerospace & Defense (A&D) or A&D related technology.

The following 6 students received around Rs. 2.5 lakhs in 2017-18 from the Boeing Travel Grant.

Chart (Amount sanctioned ₹ in lakhs / No. of Student Beneficiaries):

Year	Amount sanctioned (₹ in lakhs)	No. of Student Beneficiaries
2010	3.60	5
2011	5.17	5
2012	5.28	9
2013	9.12	11
2014	14.36	13
2015	11.71	14
2016	2.47	8
2017	2.50	6

Legend: Amount sanctioned (₹ in lakhs) / No. of Student Beneficiaries

Chandan Bose [AM14D403]
Ph.D. Scholar
Dept. of Applied Mechanics

" I would like to convey my sincere gratitude towards Boeing for supporting my travel expenses for participating in the 47th AIAA Fluid Dynamics Conference held at Denver, CO during 5-9 June, 2017. I have presented two of my papers titled "Flow Periodicity Analysis Past a Flapping Airfoil Using Proper Orthogonal Decomposition" and "Quasi-periodic Vortical Signature of an Elastically Mounted Flapping Airfoil" in the conference. The area of the presented works are related to unsteady aerodynamics and fluid-structure interactions of flapping wings. The primary application of these works lies in the development of flapping wing Micro Aerial Vehicles. Attending this conference gave me a great opportunity to interact with the top-notch researchers around the world in my area of research and helped me to gain exposure as well as feedback and place my research in front of a global audience. Moreover, I have published one journal paper in AIAA journal by extending one of the work presented in the conference. It would not have been possible without the Boeing travel grant which has partially funded my trip. I would also extend my gratitude to the alumni office and its staff members for their endless support to receive the grant.

" My research work titled "NUMERICAL INVESTIGATION OF EFFECT OF HEATING ON VORTEX BREAKDOWN BUBBLES" was presented as a part of my PhD work done at IIT Madras. I presented results from 3D direct numerical simulation of Navier Stokes equations for a fluid confined inside a cylindrical domain with Rayleigh number, rotational Reynolds number, Prandtl number and aspect ratio as parameters of the system. The summary of my work I presented is as follows.

We investigated how a vortex breakdown bubble formed by rotation of an end wall of the cylinder is modified when heating and cooling are applied at opposite ends. We studied the effect of heating, at $Ra = 200000$ in which buoyant force and inertial force due to lid rotation drives the flow against the viscous forces.

R. Vishnu [AE14D003]
PhD
Aerospace Engineering

The equations are formulated systematically for the first time, with pure rotation and pure RBC as extreme cases of the same problem. The present numerical results validated well with the available experimental results for pure rotation case and with numerical studies for heating and rotation case. We observed that the size of bubble is increased and axisymmetry is broken along with bubble rotating inside the domain. The rotating waves near the side wall establishes this non-axisymmetry. We investigate the importance of Eckman and Stewartson layers in the flow field. The physical mechanisms of bubble formation modified by heat transfer are also studied. The heat transfer is quantified and a new scaling law of heat transfer with Ra is established. We observed that heat transfer, quantified by Nu, scales with a power of 1/5 of Ra for rotational $Re = 2200$ and $20000 < Ra < 200000$.

The visit gave an opportunity to showcase my research to an wider audience at an international platform. In the conference, I could interact with researchers from premier institutes around the world, including Prof. Edgar Knobloch, University of California Berkeley, USA, Prof. K R Sreenivasan, New York University and Dr. Anna Evgrafova, Institute of Continuous Media Mechanics RAS, Russia to mention a few. I could discuss my research with them, which will pave a way for mutual collaboration in the future. Since my work finds broad variety of applications from combustion technology to understanding various natural flows in atmosphere, TMB-2017 provided the right exposure to the wider scientific community from these fields.

S. Arun [AE13D018]
PhD
Aerospace Engineering

I, Arun S, am a PhD Scholar at the Department of Aerospace Engineering at Indian Institute of Technology Madras, Chennai. I had been invited to present my research work at the Sixth International Conference, Turbulent Mixing and Beyond: Non-Equilibrium Transport Across Scales, which was held from August 14-18, 2017 at ICTP, Trieste, Italy.

At the conference, I gave an oral presentation on "Compressibility effects on initial evolution of mixing layers". The abstract of my talk is given below.

The shear layer growth rate in compressible mixing layers has been studied extensively for the last few decades. Reduced growth rates at higher values of convective Mach number were observed in experimental as well as numerical studies. Detailed investigations revealed that the reduction in growth rate is due to reduced levels of turbulent kinetic energy production, rather than due to increased dissipation arising from dilatation at higher Mach numbers. Most 11 of these studies have been done for the self-similar stages of mixing layer evolution. The transient evolution before attainment of self-similarity is affected by compressibility and is evident from the shear layer growth during this period. Early stages of evolution are dominated by unstable modes, characteristic of specific flow conditions. We perform numerical simulations of temporally evolving mixing layers, for values of convective Mach number ranging from nearly incompressible to compressible regime. The aim is to study the effects of compressibility on the evolution of shear layer during the initial phases. Three dimensional computations of counterflowing equal density streams are performed in a cuboid domain with periodic boundary conditions in streamwise and spanwise directions, using a BGK-Boltzmann based gas-kinetic scheme, which is capable of simulating unsteady compressible flows. We study the flow structures and statistics to investigate how compressibility plays a role in the evolution during this period. The objective is to find if the evolution is similar to modal evolutions during the very early stages or to the self-similar evolution.

The abstract is available in Proceedings book of abstracts at: http://users.ictp.it/~tmb/2017.TMB.Proceedings.Abstracts.Final.pdf

A video recording of my presentation is made available by the oraganizers at: https://ictp.video/media/compressibility-effects-on-initial-evolution-of-mi

The conference was an enriching experience, where I could meet several experts in the field and had discussions with them. I got valuable feedback on my presentation which are helpful for the research problem I am working on. I also got to learn a few things, including recent developments in the field of compressible turbulence.

M. Rohith [AE16S015]
PhD
Aerospace Engineering

The Asian – Australian Rotorcraft forum (ARF) is an annual conference held in Asia/Australia which gives a platform for discussions and presentation on the latest research and challenges in the rotorcraft industry and academia. The 6th edition of the conference was organised by Japan helicopter society and AHS international Japan chapter association with JAXA, the Japan Aerospace Exploration Agency. The conference was held in Kanazawa, Japan from November 7th to 9th 2017. The forum formed a platform where the vertical flight advancements, electric VTOL – the future of vertical flight were discussed.

The conference hosted a number of scientists, academicians, students and industry representatives who work in the field of rotorcraft. Office holders of Australian defence and several other eminent personalities from industries addressed the conference.

Several helicopter agencies and universities from various countries like DLR, JAXA, ONERA etc. presented detailed reports on the research going on in rotorcraft sector in their institutes and countries. Also there were a number of talks from academicians and research scholars on several topics related to the forum.

The major discussions were on the challenges in the industry, advancements in research field and industrial application of several research findings. Several papers presented under the category of acoustics, dynamics, aerodynamics, UAV, design, Safety operation, flight controls, test & evaluation, handling qualities and structures & materials.

The paper "An Experimental Investigation of Ground Effect on Rotorcraft in the presence of Side walls", authored by myself, Mr. C Joseph and my guide Dr. Ranjith Mohan was selected for oral presentation at the forum in the aerodynamics session. The session was chaired by Dr. Mitsuru Kosaka (Subaru) a number of attendees from industries and academia gave reviews and suggestions which helped us for deciding the furtherance of research and improving the current methodology. Also the presentations from other Indian and international institutions like GIT, IISC, KIT, KAIST was a good exposure to understand the pace and width of the research going on in our field.

There were participation from industries like Bell Helicopters, Ryoyu systems, Weathernews etc. and also from Australian army who discussed their requirement and expectation from rotorcraft research community. The discussions was extremely beneficial as it helped to a great extend to understand the difficulties faced by the industry and the research problem solving approach of fellow international scholars. The presentations were rich in content and interactive. Also the forum gave a great opportunity to interact with the pioneers of my research field and to interact with them regarding our research work. I met a number of eminent personalities both from academia and industry, who were very patient in hearing our questions and answered them with advices to improve the quality of the research. It was great learning experience at all levels.

Salini S Nair [AE13D215]
PhD
Aerospace Engineering

> *6th Asian/Australian Rotorcraft Forum (Kanazawa, Japan, November 7-9 2017) is held every year in the Asian (India, China, Korea, Singapore, Japan) and Australian regions. The conference forms a platform for people working on rotorcraft from academia, industries and defense to interact with each other and address the challenges in the field of rotorcraft research.*

The 6th Asian/ Australian Rotorcraft Forum was organized by the Japan Helicopter Society and the AHS International Japan Chapter. The forum was held in Kanazawa city, Japan from November 7th to 9th 2017. It was attended by scientists, academicians, students and industry-related people working in the field of rotorcraft. The forum formed a platform wherein the future of vertical flight, including electric VTOLs, was discussed with much enthusiasm and rigour.

There were plenary talks by several eminent people from the industry, army and also academicians. The helicopter agencies from various countries, DLR (Germany), JAXA (Japan), ONERA (France) gave detailed presentations on the rotorcraft research going on in their respective countries. The topics ranged from environment friendly helicopters, air rescue activities, air ambulance to various strategies to improve the efficiency and usage of helicopters.

Around 100 papers were presented in different sessions categorized into acoustics, dynamics, aerodynamics, flight mechanics, testing, safety operations and structures. Numerous papers presented from industries like Subaru, Airbus, Leonardo Heli, Weather news projected the needs of the industry as far as helicopters are concerned. There were also presentations from personnel from US army and DoD Australia, wherein the requirements of the army helicopters were highlighted. The presentations and subsequent discussions turned out to be highly informative and inspiring for scholars like me. We got to hear from the actual users of the rotorcraft about the issues we need to be working on, and the ways we could actually solve them. The papers from various universities like GIT, IISC, KIT, KAIST showed the fast and rigorous pace at which research is going on and was a spur for us.

The forum was also a great opportunity to interact with the pioneers in the field and hear about their work and their opinion on our work. The interest they showed in the work we are doing was both exciting and encouraging. They were very patient in answering our questions and gave genuine advice on how we can improvise further on our work. The conference was great learning experience at all levels.

The paper "An evaluation of ground effect modeling for rotors in hover", authored by myself, my colleague Cibin Joseph and my guide Dr. Ranjith Mohan was selected for oral presentation at the forum in the Aerodynamics session. The session was chaired by Professor Lakshmi Sankar (GIT) and attended by industry people as well as academicians, who gave reviews and suggestions, which would help us in a great way in further advancing our work.

I would not have been able to make use of this opportunity had it not been for the Boeing Travel Grant. I take this opportunity to thank everyone involved, including the Boeing Company, our Alumni, and the Alumni office IITM, in helping me get this grant.

As in recent previous years, this fund of about Rs.5.75 L was used during 2017-18 to support fabrication of UAV models; this was towards a core course called Mini-Project for our Dual Degree and M.Tech students.

Thank you once again for your generous contribution towards Travel Grant and Curriculum enrichment in Aerospace Department

SSAN Ananya Educational Trust

SSAN Ananya is a trust set up with the noble intention of helping deserving students who require financial help during their education at IIT Madras and inspiring them to be a part of a unique brand of citizens who believe in the importance of 'paying forward' the interest free loan. So far twelve students have been benefitted through this scheme. Five Students have received Rs. 6 Lakhs in 2017-18

Awards & Scholarships

B. S. Ramapriya Memorial Scholarship

This Scholarship is awarded in memory of B S Ramapriya, [1979/BT/ME]. It is given to a deserving student of limited means to cover any shortfall in tuition and to provide a grant towards living expenses.

This Scholarship was announced by Krishna Prasad, brother of B S Ramapriya on November 17, 2017.

Chindanoor Vishwas (ME17B135) is the first recipient.

Nimbus awards
at inter IIT Sports Meet

To encourage the sportsmanship we presented nimbus awards to the best player, from 17 different sports categories. All the 17 awards were sponsored by our alumni.

The best player was awarded Rs.10,000 and a certificate

HFCL Scholarship

HFCL Social Services Society sponsored a scholarship for five economically disadvantaged students, under the company's CSR programme. They donated Rs. 3 lakhs per year per student for their entire four years of studies, totalling Rs. 60 lakhs.

This Scholarship was announced on 10 November, 2017. Neelu Chandra, CSR Head, HFCL handed over the Scholarship sanction letter to the students.

Message from Dhanekula Varun Teja

Thanks a ton for your gracious scholarship. This scholarship reduces my financial burden and gives me encouragement to move forward.

Message from Avvari Sai S S Bharadwaj

I am Bharadwaj, a student of CSE Dept. I am really honoured to receive the HFCL scholarship. I thank HFCL for providing me support for my education and in return, promise to be of good service to the nation.

Message from Arabhi Subhash

A ton of thanks to HFCL social service society. I'm glad to receive the scholarship and I promise a decent behaviour and academic excellence. Hoping that the encouragement that you are giving me will help me attain my goals.

Message from Abdul Mooizz

I'm very glad to be one of the recipients of this scholarship. It helps me in many ways other than financial. This scholarship gives me confidence and support to my dreams which I aim to achieve. I'm very thankful on behalf of my parents.

Message from Lekkala Tarun Kumar

I am Tarun Kumar studying in B.Tech first year. I am really grateful to HFCL for giving me this scholarship. The money will be very helpful for my studies considering my father's income. I thank HFCL group whole heatedly.

Smt Marti Annapurna Gurunath Award for Excellence in Teaching

Srimathi Marti Annapurna Gurunath Award for Excellence in teaching was instituted in 2011 by Prof. Marti Subrahmanyam [1967/BT/ME] & 2004 Distinguished Alumnus.

Prof. A Ramesh, alumnus of IIT Madras, from the Department of Mechanical Engineering received the above award for this year.

Prof. A Ramesh receiving the award from Dr. Girija Vaidyanathan, IAS, Chief Secretary, Government of Tamil Nadu, on 58th Institute Day – April 18, 2017.

Citation of Prof. A Ramesh

Prof. A Ramesh received his B.E. degree in Mechanical Engineering from the Alagappa Chettiar College of Engineering and Technology, Karaikudi in 1983 and his M.Tech and Ph.D degrees from IIT Madras in 1985 and 1990. Between 1990 and 1991 he headed the engine R & D group in BEML. Then he joined IIT Delhi as Assistant Professor and moved to IIT Madras in 1995. Presently he is Institute Chair Professor at IIT Madras. He was a post doctoral fellow at Ecole National Superior De Nantes (EMN), France.

Prof. Ramesh's areas of technical expertise include engine combustion and emission control, gasoline direct injection systems, combustion control in homogeneous charge compression ignitions, engine instrumentation and management, new and innovative engine designs and alternative fuels. He had guided several Ph.D, M.S and M.Tech students and published more than 135 research papers in Journals and Conferences. He received the Bagyalakshmi Krishna Iyengar award several times and several of his students have won best project awards. He excels in finding practical and cost effective solutions to problems faced by the automotive industry.

He was instrumental in developing three new state of the art laboratories for UG/PG teaching. He was also responsible for planning and developing the automotive test labs at NCCRD equipped with modern industry grade facilities. He has coordinated the user oriented M.Tech program on automotive engine technology. He has been the faculty advisor of the formula racing team RAFTER since 2011 which has grown to become one of the best in the country. He served as Advisor Co-curricular and Vice - President of the mechanical engineering association, and as the head of the I C Engines laboratory.

He has completed several projects with funding from government and industry and had filed 10 patents of which some are joint with industry. He has been on several national committees constituted by MNRE, TIFAC, DST, DRDO, CSIR and BIS. Currently he is the Chairman of the Centre for Continuing Education and was instrumental in upgrading the facilities, introduction of the internet based masters programs for the industry and creating state of the art studios.

Prof. Ramesh is a passionate teacher who has handled a wide range of core and elective subjects. He enjoys teaching first year students and handles the thermodynamics course whenever he gets an opportunity. He spends considerable time with his students and research scholars outside class hours, often the discussions end in motivating sessions. He also indulges in helping students who need more attention and guidance. He is admired as a meticulous person by his colleagues, supporting staff and students.

The institute is proud to confer upon him the "Srimathi Marti Annapurna Gurunath Award for Excellence in Teaching" for his demonstrated proficiency and innovativeness in teaching.

Shoma and Prasad Setty Student Distress Fund

A "Student Distress Fund" under the auspices of IIT Madras and sponsored by Shri. Prasad Setty [1992/BT/CH], covers potential unexpected expenses incurred by a student due to causes like personal or medical emergencies. A Committee comprising the Dean of Academic Courses and Dean I&AR review applications and decide on the sponsorship of the student. Annual interest accruals from the endowment are used for this purpose. The student's case must be referred to the Committee via the student's Faculty Advisor, and Head of the Department.

Message from Aarathy Sen

I am very thankful for the financial support. These donations are very helpful for poor and deprived families across the country who have capability but are limited by their financial background.

Message from Ravi Krishna

You have inspired me to study more, achieve more and reciprocate. I am grateful for the financial support that you are providing.

Message from Megavath Srinivas

I would like to thank you for giving me the scholarship. This is a good opportunity for me to study in IITM. Thank you sir, for supporting me financially.

Message from Dodla Sai Krishna

I am writing this mail to convey my acknowledgement for considering my request of my educational scholarship and approving it. The sponsor has done me really great help because of which I am able to concentrate on my studies without worrying about financial issues. The amount was sufficient to meet both my tuition and hostel fees. I would like to extend my sincere gratitude to the alumni who provided this support and everyone in the I&AR office who helped to forward my request. The support and help provided by all of you helped me to come out of the stressful situation which resulted in a good CGPA in my first semester performance.

Message from Shamshad Ahmad

I would like to thank the generous person who has donated the student distress fund for my education. This was a BIG help. I will continue to pursue my studies because of you. I am humble and forever grateful.

Message from Moulik Gupta

I want to take this opportunity to thank you for the financial support. It inspires me to work harder and follow my interests.

Message from J Vamisidhar

Students look at different ways for getting help. alumni have helped me in tough times to pay my fees and progress in my studies. Getting this help from alumni inspires me to donate when I become an alumnus.

Message from Ayush Chandore

I am very thankful to the alumni of IIT Madras who helped me with this financial offering. I was not able to afford the fees as my financial background is very bad these days. This means a lot to me.

Message from Jaya Kontilya

I am really thankful to you for providing me this financial support. You have taken up a very noble cause in helping students.

Message from B Bharath

Thank you for the financial support. It will help me a lot and I promise that I will keep up my performance in the college.

Message from Era Modi

I am writing this to express my sincere gratitude to you for making this scholarship possible. I promise you that I will work very hard and eventually give something back to others.

Message from Nitish Kumar Singh

I am very thankful to you for giving me Rs. 30,000, when I needed it most. Earlier in my academic endeavors, when I took part in international competitions, I was supported by the institute alumni network. This gesture of yours motivates me to work harder to become successful in my career, so I can return the favor to our institute and society. Thank you once again. I would love to thank you in person.

Ram Shriram
Merit Scholarship

Ram Shriram contributed Rs. 32.50 Lakhs towards "Ram Shriram Merit Scholarship (RSMS)" for economically backward students. 67 students have received this scholarship for the current year.

Nature of Scholarship

- **For the year 2017-18**

Seven Scholarships of Rs.1,20,000/- each for B.Tech/DD student from 2017 batch onwards.

60 scholarships (20 scholarships for each batch) of Rs. 40,000 each to 2016, 2015 and 2014 batches among MCM scholarship recipients. Based on CGPA.

- **For the year 2018-19**

Renewal of 40 scholarships (20 Scholarships of Rs. 40,000 each) for 2016, 2015 batch among MCM recipients based on CGPA.

Renewal of 7 Scholarships of Rs.1,20,000/- each for 2017 batch based on CGPA and selection of 7 new students from 2018 batch

- **For the year 2019-20**

Renewal of 20 Scholarships of Rs. 40,000/- for 2016 batch among MCM recipients based on CGPA.

Renewal of 7 Scholarships of Rs.1,20,000/- each for 2017, 2018 batches based on CGPA and selection of 7 new students from 2019 batch.

- **For the year 2020-21**

Renewal of 7 Scholarships of Rs.1,20,000/- each for 2017, 2018, 2019 batches based on CGPA.

Selection of 7 new students from 2020 batch.

Criteria for selection

- Based on JEE advanced rank and parental income below Rs. 5 Lakhs (for fresh sanction).
- Renewal based on Minimum CGPA 8 by the end of previous academic year and student should not have any backlogs.
- The student should not receive any other scholarship other than MCM.

"Ram Shriram Merit Scholarship (RSMS)" event was conducted on 02 Sept, 2017. In this event, 67 eligible students were identified for the scholarship and 66 students participated and received the "Scholarship Award Letter" from donor Ram Shriram.
An honorarium was given to Ram Shriram by the Director of IIT Madras.

Young Faculty
Recognition Award

The Young Faculty Recognition Award was instituted by alumnus Dr. P Balasubramanian [1971/ BT/ AE & 1973/ MT/ IM] in order to promote excellence in teaching and high-quality research. These awards are presented to outstanding young faculty members on Teachers Day to acknowledge and felicitate their achievements in their respective academic and pedagogic fields.
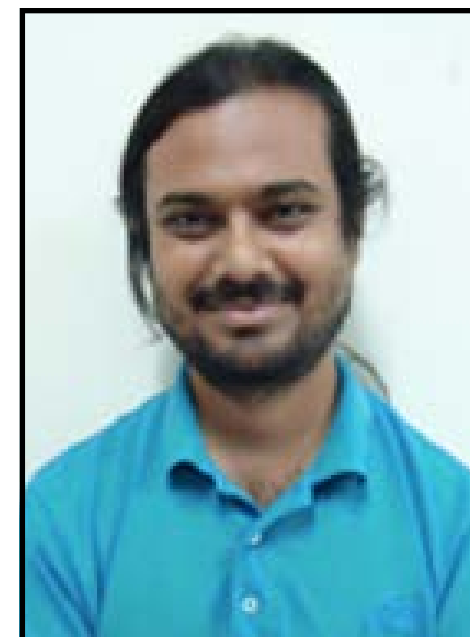
Dr. Shaikh Faruque Ali
Associate Professor
Department of Applied Mechanics

Dr. Shaikh Faruque Ali is an Associate Professor in the Department of Applied Mechanics. He is a Civil Engineering graduate from Jadavpur University. He finished his MSc and PhD at the Indian Institute of Science, Bangalore. He received his doctorate in 2009. Dr. Ali has been a post-doctoral scientist at Automatic Control Research Laboratory (CRAN) at IUT-Longwy, France. He is a Newton International Fellow to the Royal Society, UK and Associate Fellow to the Indian National Academy of Engineering.

Dr. Ali joined the Department of Applied Mechanics in December 2011. His research interests are in linear and nonlinear energy harvesting, harvester design and applications, modelling and control of dynamical systems, structural health monitoring and morphing structures.

Dr Saravanan U
Associate Professor
Department of Civil Engineering

Dr. Saravanan is an Associate Professor in the Department of Civil Engineering. He is a Civil Engineering graduate from IITM who then continued his MS and PhD at Texas A&M University, USA.

Dr Kalpana Mahalingam
Associate Professor
Department of Mathematics

Dr. Kalpana Mahalingam is an Associate professor in the Department of Mathematics. She joined IITM in September 2008 after working as a PDF in the Department of Computer Science, University of Western Ontario, Canada, for 4 years. She has her Bachelors degree from the University of Madras, Masters from IITM and Ph.d. from University of South Florida—all in Mathematics. She has a total experience of 16 years in teaching and research. Her area of research includes Bio-Molecular Computing and Discrete Mathematics.

Dr. Aravind G
Associate Professor
Department of Physics

Dr. Aravind did his B.E. (Hons) in E.E.E and M.Sc. (Hons) in Physics from BITS Pilani in 2001. He then pursued a PhD in experimental atomic and molecular physics at the Tata Institute of Fundamental Research (TIFR), Mumbai. He worked as a postdoctoral fellow at the University of Aarhus, Denmark, in the Department of Physics and Astronomy, and then in the University of Basel, Switzerland. His research interests include photoelectron spectroscopy and dissociation dynamics of interstellar medium ions. He was awarded the INSA Young Scientist Medal for Physics in 2012.

Dr. Ashis Kumar Sen
Associate Professor
Department of Mechanical Engineering

Dr. Ashis Kumar Sen is currently an Associate Professor in the Department of Mechanical Engineering, where he has been a faculty member since 2010. He received his Bachelor's and Master's degree from NIT Rourkela and IISc Bangalore respectively. He received his Ph.D. degree from USC-Columbia, USA, in 2008, and subsequently did his Post-Doc at the University of Southampton, UK.

After joining IIT Madras, he has secured research funding of nearly 800 lakhs from various funding agencies to set up and run a Microfluidics Research Facility where cutting-edge research is possible. He has guided 4 PhD/MS scholars thus far and is currently guiding 15 more.

Dr. Sen has published 51 research papers in various prestigious international journals and filed 5 patents. He has taught several core courses to PG/UG students, offered a new elective course on "Microfluidics and Microsystems" and an NPTEL (online) course on "Microfluidics". He has been actively participating in various administrative duties at both departmental and institute levels at IIT Madras.

He is the recipient of the Institute Research and Development Award (IRDA); Early Career Level in 2017 (from IIT Madras); Indian National Academy of Engineering (INAE) Young Engineer Award, 2013; Institution of Engineers India (IEI) Young Engineer Award, 2013; and the DAAD Fellowship, 2012.

He is a member of the Indian Society of Heat and Mass Transfer, the Indian Society of Fluid Mechanics and Fluid Power, and the Indian Society of Smart Materials and Structures. His main research interests lie in the areas of microfluidics based interfacial phenomena and healthcare diagnostics.

Dr. Dillip K. Satapathy
Assistant Professor
Department of Physics

Dr. DILLIP KUMAR SATAPATHY received his Ph.D. with Magna cum Laude from the Mathematics and Natural Sciences Faculty, Humboldt University Berlin, Germany in 2005(great honors) Subsequently, he continued his research at Swiss Light Source and then at the University of Friebourg, Switzerland as a post-doctoral scientist. Dr.Satapathy joined the Department of Physics, IIT Madras as an Assistant Professor in 2012.

Dr. Satapathy's research interests lie in experimental condensed matter physics with special emphasis on soft matter systems. As an experimentalist, his expertise spans over areas ranging from the scattering of light, x-rays, electrons, neutrons to advanced techniques of imaging. Determination of the structure of fluids under extreme confinement, discovering the intrinsic nature of the magnetic proximity effect and the fast dynamics of soft matter under soft confinement are some of the highlights of his research work.

Keshav-Rangnath Excellence in Research award

Keshav-Rangnath Excellence in Research award was instituted by alumnus Dr. Prakash Keshaviah [1967/BT/ME & 2015 Distinguished Alumnus] in order to recognize excellence in journal publications. These awards are presented jointly to a scholar and a faculty member during Alumnite.

- ME12D074 – Ganesh Madhav Bapat (Guide: Dr. Sujatha Srinivasan)
- CE12D069 – Raj Kamal singh (Guide: Dr. Ligy Philip)
- BT13D051 – Sneha Maria M (Guide: Dr. T S Chandra and Dr. Ashis Kumar Sen)
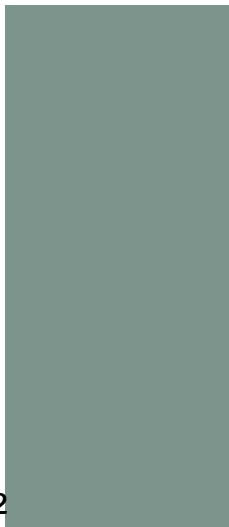
Lakshmi Raman Memorial M. Sc Mathematics Scholarship, Chemistry Scholarship, Physics Scholarship

Lakshmi Raman Memorial Scholarships were instituted by Mr. Gopalan Raman for girl students in three departments (Mathematics, Physics & Chemistry) under two different criteria–a first year MSc student with the highest rank in Joint Admission Test; for a first year MSc student with highest CGPA at the end of the 2nd semester. Each year, an amount of Rs. 28,200/- is given to the student as scholarship.

Recipients of the Scholarship

Sl.No.	Roll No.	Name of the student	Scholarship name/Amount	Period
1.	CY17C035	Ms. Reena	Mrs Lakshmi Raman MemorialChemistry Scholarship (for girl student) based on JAM rank Rs.28,200/- per year	2017–18 First year
2	CY16C032	Ms. Sakshi	Mrs Lakshmi Raman MemorialChemistry Scholarship (for girl student) based on CGPA Rs.28,200/- per year	2016–17 Second year
3	PH17C014	Ms. Chanchal	Mrs Lakshmi Raman MemorialPhysics Scholarship (for girl student) based on JAM rank Rs.28,200/- per year	2017–18 First year
4	PH16C017	Ms. Ipsita Bar	Mrs Lakshmi Raman MemorialPhysics Scholarship (for girl student) based on CGPA Rs.28,200/- per year	2016–17 Second year
5	MA17C028	Ms. Monika Budania	Mrs Lakshmi Raman Memorial Maths Scholarship (for girl student) based on JAM rank Rs.28,200/- per year	2017–18 First year

Kalidas Madhavpeddi Scholarship

Kalidas Madhavpeddi Scholarship will be given to students who have the best record in academics, have demonstrated leadership & teamwork and participate in social service activities on campus or off campus. This scholarship was instituted by Kalidas Madhavapeddi [1978/BT/CE].

Recipients of the Scholarship

CE15B021	DAMERA ABHISHEK	B.Tech

Smt. Hattiangadi Manorama Bai scholarship

Donor Name: Dr. Vikram Rao [1965/BT/MT]

Smt. Hattiangadi Manorama Bai scholarship was instituted in the year of 2014. It is given to the most accomplished and financially needy female student admitted to the B.Tech program. This scholarship includes tuition, room, board and a stipend.

Recipients of the Scholarship

Sl. No.	Roll No.	Name	Hostel	Year	Amount of Scholarship
1	EE17B052	MANOGNYA PARAM KOOLATH	Sarayu 435A	2017-18	Rs.1,40,000/-

Sarasvidya Scholarship

Donor Name: 1990 batch alumni
Endowment created for Rs. 21 Lakhs (USD 1 Million)
About the Scholarship-Rs.1,50,000/- for the top two students of 2nd, 3rd and 4th year of the B.Tech/ Dual Degree program.

Criteria for selection:

- **For the year 2016-17: 2 new students**

  Top two students from B.Tech /Dual Degree with highest CGPA at the end of 2nd Semester (2015 Batch)

- **For the year 2017-18: 2 new students + 2 renewal**

  Top two students from 2016 batch from B.Tech/Dual Degree with highest CGPA at the end of 2nd semester and renewal of 2015 batch subject to CGPA not below 7 and GPA not below 6.

- **For the year 2018-19: 2 new students + 4 renewal**

  Top two students from 2017 batch from B.Tech/Dual Degree with highest CGPA at the end of 2nd semester and renewal of 2015 & 2016 batch subject to CGPA not below 7 and GPA not below 6.

- From 2018-19, every year two fresh students will be selected and 4 students will get renewal. Annual commitment will be Rs. 9 Lakhs per annum.

- The student should not be receiving any other scholarship/fee waiver/grant except merit based scholarship like NTSC

- Parental Income should be below 12 lakhs.

For the year 2017-18, it is awarded to top two students from B.Tech/Dual Degree with highest CGPA at the end of 2nd Semester.

Sl. No.	Roll No.	Name	Hostel
1	EE16B025	MILIND KUMAR VADDIRAJU	Rs.1,50,000/-
2	CS16B021	R RAGHUL	Rs.1,50,000/-

Sponsor-A-Student

Sponsor-A-Student project was instituted in 2012, where alumni donors could choose the kind of support they wanted to give to needy students:

- Tuition Fees - For Rs. 102,000 (USD 1800) per year, the donor can pay the tuition fees for one student

- Tuition & Hostel Fees - For Rs. 80,000 (till 2012 batch) (USD 1600) and Rs.1,50,000 (from 2013 Batch onwards) (USD 2500) per year, the donor can take care of the hostel fees as well

- Airfare Option 1 - For Rs. 75,000 (USD 1500) per year, the donor can cover the airfare of one student attending an International event, such as a conference, workshop, summit, competition or internship

- Airfare Option 2 - For Rs. 1.5 lakhs (USD 3000) per year, the donor can cover all travel expenses for one student attending an International event

- Semester Abroad Option 1 - For Rs. 1 lakh (USD 2000) per year, the donor can sponsor a "Semester Abroad" for one student at a nearby country (e.g., Taiwan, Singapore)

- Semester Abroad Option 2 - For Rs. 2 lakhs (USD 4000) per year, the donor can sponsor a "Semester Abroad" for one student at a more distant country (e.g., USA, Europe)

- Departmental award for 10 years - one-time payment of Rs. 1 lakh, the donor can sponsor a departmental award for 10 years to be given on "Alumni Day" (day after Convocation in July)

- Institute award for 10 years - one-time payment of Rs. 2 lakhs, the donor can sponsor an Institute award for 10 years to be given on "Alumni Day"

The 2003 batch decided to direct their donations towards this project and sponsored the tuition and hostel fees for a student for two years (2012 and 2013). Other individual donors have also contributed towards this program and so far 10 students have received tuition and hostel fees through this initiative.

Donor name	Student Name	Roll No
Client Network Service India Pvt Ltd	Teratipally Srikar	CS15B037
Girish Kamath [1986/BT/EE]	Shubham Yogesh Agarwal	ME13B125
2003 batch	Maryala Nikhil	CS13B017
Srikant Vatturi [2000/BT/ME]	Kamma Sri Harsha	EE15B033
S. Ramakrishnan [1974/BT/ME]	Nagireddy Harishreddy	ME13B050

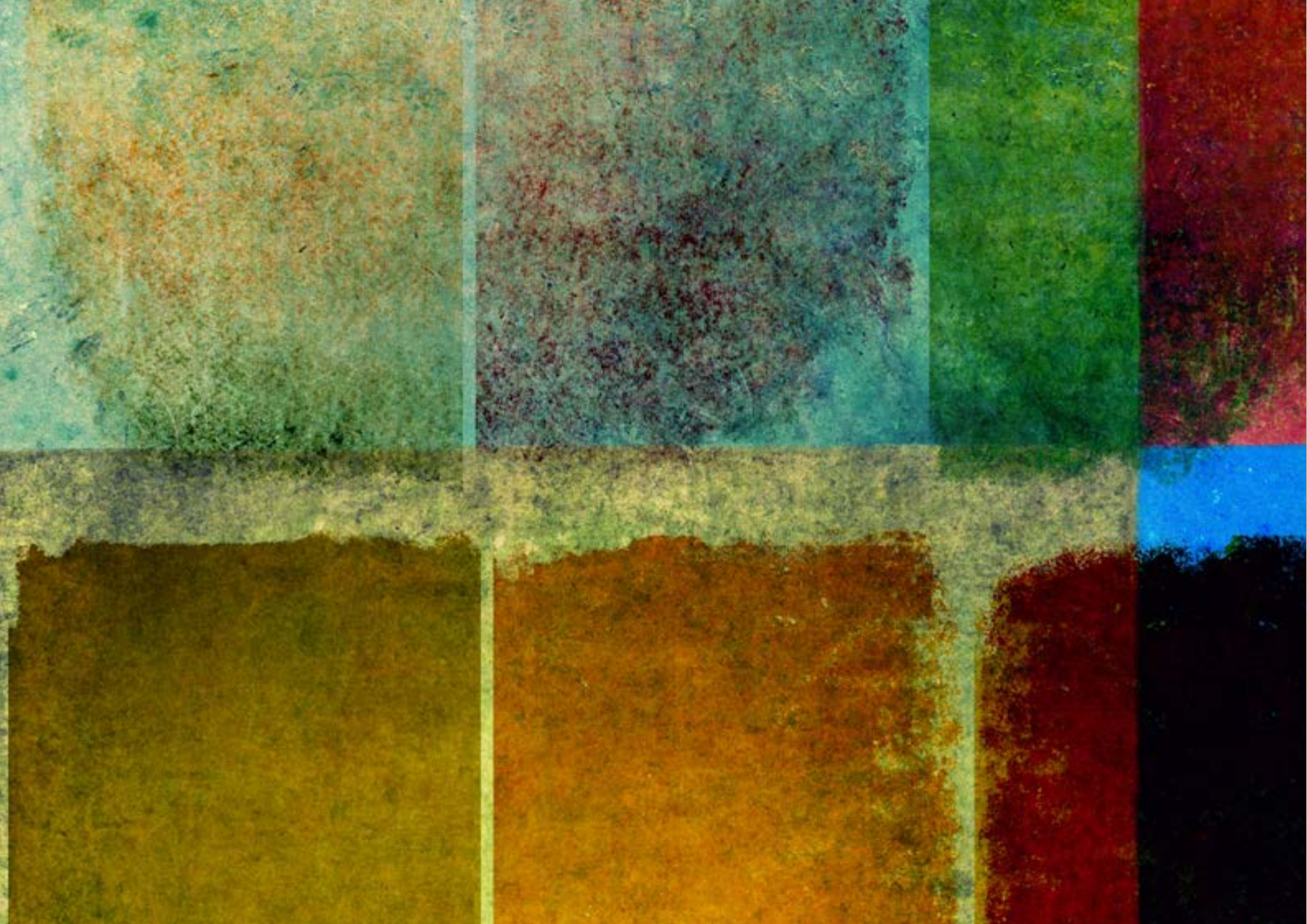# Dr. YBG Varma Award for Teaching Excellence

Donor Name: Dr. Y B G Varma Family

Award Objective
The faculty follow an academic process by which students are motivated to learn; have a positive influence on how they think, act, and feel; they guide students successfully through the exploration of creative, critical thinking, and problem solving processes; and encourage students to think, empowering them to find their own creativity.

Scope of Award
Faculty of Department of Chemical Engineering IIT Madras, teaching undergraduate and graduate programs – full semester course including electives.

The Award
- A Silver medal with gold Plating
- Cash award - Rs. 30,000.00
- Certificate

EVENTS

Ruby Reunion

1976 Batch

The 1976 batch had their Ruby reunion on January 2, 2017. 76 alumni & their families attended the event. The welcome address was given by N Srikanth [1976/BT/EE]. Bringi Dev [1976/BT/ME] & Subbaraman [1976/BT/CH] introduced their fellow mates. Kiran (student Head for CFI) spoke about the Centre for Innovation.

The '76 batch honored retired professors, and pledged Rs. 51 lakhs towards Merit-cum-Means Scholarship. The ceremonial check was handed over to the Director, IIT Madras.

The Director & Dean (I&AR) provided updates on Institute Development.

Distinguished Alumni & major donors from this batch were honored with mementos.

1977 Batch

The 1977 Batch Ruby Reunion and first ever Research Scholars' Reunion across years and departments was held on 2nd January, 2018.

1976

Golden Reunion

1967 Batch

The Golden Reunion of the 1967 Batch was held on January 27, 2017. 90 alumni & their families attended the event.

The welcome speech was given by the Dean I&AR. Ravi Venkataraman (IITMAA President) spoke about the various initiatives taken up by IITMAA, and Subramanian (Development Office) detailed the various sponsorship opportunities available for alumni and corporates.

Kumaran Sathasivam [1985/BT/NA] & [1989/MS/ME] from the Heritage Centre spoke about IITM & it's early history. Director Prof. Bhaskar Ramamurthi gave updates about happenings on Campus.

1968 Batch

The 1968 Batch Golden Reunion was held on 9th January, 2018.

1967

Reunion Day

Reunion Day was held on 28th December,2017
More than 270 alumni & their families attended the event.
1972, 1982, 1992, 1997, 2002 & 2007 batches had their reunions.
Prof. Ashok Jhunjhunwala delivered a talk on "Scaling EV in India".
Director, Prof. Bhaskar Ramamurthi & Dean I&AR , Prof. Nagarajan addressed the audience .

2ⁿᵈ Annual Workshop on Computational Brain Research

The 2ⁿᵈ Annual workshop on Computational Brain Research held on Jan 3-7 in IC & SR was sponsored by Kris Gopalakrishnan [1977/MSc/PH] & [1979/MT/CS]. The total number of participants was 200+.

The CCBR, an interdisciplinary center at IIT Madras, focuses on a two-way interchange between neuroscience and engineering.

The CCBR-IITM includes IITM faculty across several departments and three visiting Chair Professors (Prof.Partha Mitra, CSHL; Prof.Anand Raghunathan [1992/BT/EE], 2017 DA, Purdue; and Prof.Mriganka Sur, MIT).

Opening remarks were made by Director Prof. Bhaskar Ramamurthi and an introduction to the workshop was given by Kris Gopalakrishnan.

A poster presentation was held on January 5ᵗʰ and a workshop dinner reception with spouse was held on January 6ᵗʰ at Westin, Velachery.

AlumNite 2017

"AlumNite 2017" was held
on 22nd July, 2017.

The following were the highlights:

★ An Institute Chair, endowed in the name of
late Prof. S Sampath by alumni of the pioneer
batches, '64-'66, was launched.

★ A new initiative to honour the "Founding
Professors" with a Chair was announced by
Mallick Putcha [(1964/BT/EE) & (1966/MT/EE)].

★ The "Ace Micromatic Chair Professorship" in
Machine Tools & Manufacturing Technologies,
was launched. P Ramadas, Managing Director
of the company, will be the Chair.

★ The Distinguished Alumnus Award 2017
was presented to Prof. Anand Raghunathan,
Purdue University and Distinguished Visiting
Professor, IIT Madras.

★ The Director, IIT Madras, gave out the
YBG Varma Award for "Excellence-in-
Teaching in Chemical Engineering"; Award
for "Excellence-in-Research" instituted by
Dr. Prakash Keshaviah; the "JC Bose Patent
Award" instituted by alumni, Anil Kumar
(2000/BT/CH) & Kundan Kumar; and many
other faculty and student awards.

★ The "Graduating Class Gift Cheque" of INR
62 Lakhs was handed over to the Director, IIT
Madras, by 2017 Batch representatives.

★ Director, Prof. Bhaskar Ramamurthi, Dean,
Prof. R Nagarajan, M Subramanian (DO), Ravi
Venkatraman, President, IIT Madras Alumni
Association and the Student Secretary, I & AR
shared their views and thoughts.

IITMAA
Chapter Meets

Melbourne

The first-ever Melbourne Chapter Meet was held on January 31 with participation from 22 alumni.

Prof. R. Nagarajan, Prof. Ranjit Bauri (MME), Prof. Jitendra S. Sangwai (OE), Prof. Sridharakumar Narasimhan (CH), Prof. Ramanathan M (ED), and Sujatha (DO) from IITM also participated.

Students pursuing Ph.D & Masters (IITM alumni) had an opportunity to interact with local IITM alumni.

Malaysia & Singapore

"Alumni Chapter Meet" was organised on April 28th, 2017 in Malaysia and on April 29th, 2017 in Singapore.

The Director & Dean (I&AR) addressed the gathering through Skype. There was a good number of alumni turnout.

Mumbai & Pune

The IITMAA Mumbai & Pune Chapter held their meeting in February at the Goldfinch Hotel, Mumbai. 80 alumni attended the event. The Welcome Address was given by IITMAA President Ravi Venkatraman [1971/BT/CE] and a special address was given by Dean I&AR, Prof. Nagarajan. Director, Prof. Bhaskar Ramamurthi, also addressed the gathering.

Local alumni Anjani Kumar Agarwal [1970/BT/EE], Rakesh Roy [2005/BT/NA] and Hiranya Kumar Panigrahi [1970/BT/MT] spoke during the meeting and a Fireside Chat was held between Ambi Parameswaran [1977/BT/CH] (Founder-Brand-Building.com) and D. Shivakumar [1982/BT/AE] (CEO, PepsiCo India). IITMAA Treasurer Mohan Narayanan [1982/MT/EE] proposed a vote of thanks.

Bangalore

2017

IITMAA Bangalore Chapter had its first Annual Meet on the 8th of April.

100 alumni participated in the event. The meet began with an interaction with Director, IITM and Dean, I&AR.

2018

The Bengaluru Chapter meeting was held at the Century Club, Bengaluru on 17th of March, 2018. The event saw participation from 250 alumni from across years. We had alumni from the first graduating batch as well as from the batch of 2017.

Delhi

2017

160 alumni attended the Silver Jubilee celebration held on March 5th at Ashok Khanna's [1967/BT/CS] residence.

2018

IITM Delhi Alumni Chapter Meet was hosted by Ashok Kharbanda [1967/BT/ME] and held on February 11, 2018. More than 50 alumni attended the meet

Alumni Meets

Tokyo, Japan

IIT Madras Alumni Meet at Tokyo, Japan was held on November 18, 2017. 21 Alumni attended the meet.

Frankfurt, Germany

IIT Madras Alumni Meet at Frankfurt, Germany was held on 23 September 2017.

20 attended the meet.

London, UK

IIT Madras Alumni Meet at London, UK, was held on 22 September 2017.

IITUK Org president Ajay Chaudhary (1993, IIT Rourkee) announced that arrangements had been made to route alumni donations through the organization's account, enabling tax exemptions for the donors.

45 alumni attended the meet. 7 unregistered special guests also attended the meet enthusiastically.

Hong Kong

IIT Madras Alumni Meet at Hong Kong was held on November 21, 2017. 18 Alumni attended the meet.

IITMAANA & IITMF Reception 2017

A felicitation ceremony for the 2017 graduating students going to North America for higher studies was organised by the IIT Madras Alumni Association of North America (IITMAANA) & the IITM Foundation, in association with the Office of Alumni Affairs (OAA) on the evening of 20th July at the Westin in Velachery.

The keynote speakers in the session included the ex President of IITMAANA Bob Nathan, President of the IITMAA Ravi Venkataraman, Dean I&AR Prof. Nagarajan, President of the Development Office, Subramanian and Vice President of OAA, Suresh, Institute I&AR Secretary Vineesha Badabhagni.

80-90 graduating students with a few other members of the I&AR Student Council participated.

The discussions included various topics such as details of studies, further plans, visa matters, TA-ship and stipend, and help by IITMAANA. This was followed by a Question & Answer session.

Convocation Prizes instituted by Alumni

The 54th "Convocation Day" was held on 21 Jul 2017.

Nandan Nilekani, Chairman of the Unique Identification Authority of India (UIDAI) and co-founder of Infosys, was the Chief Guest and handed over the degree certificates to the 2017 graduates.

18 prizes in different categories, sponsored by alumni were given to the students during Convocation.

58th Institute Day

A Day at IIT Madras

The Institute Day was celebrated on April 18th, 2017. Dr. Girija Vaidyanathan [1981/MSc/PH & 2012/Ph.D/HS], new Chief Secretary of Tamil Nadu was the Chief Guest.

10 out of the 12 DA's received their awards at this function. Dr. Ramayya Krishnan received the award on March 16th, 2017.

59 alumni sponsored Institute Day Prizes, which were distributed to the students.

Prof. A. Ramesh [1985/MT/ME & 1990/Ph.D/ME] – ME Dept. received, the "Srimathi Marti Annapurna Gurunath Award for Excellence in Teaching" instituted by Dr. Marti G Subrahmanyam [1967/BT/ME]

2017

The I &AR Student team conducted this event on February 5th to make prospective students aware of the amazing life at IIT Madras.

The purpose of the event was to throw light on the curriculum, facilities, culture, fests and activities at the institute including the range of opportunities (International Exchange, Entrepreneurship, etc.) that it offers.

The presentation gave ample evidence of how deserving IITM was in earning the #1 ranking from NIRF. A campus tour was also part of the agenda.

2018

A Day @ IIM held on Feb 25, 2018

The objective was to highlight the salient features that enabled IIT-M to be ranked as the No.1 among engineering institutions in the India Rankings 2016 and 2017 released by the National Institutional Ranking Framework (NIRF), Union HRD Ministry.

Tree Planting

October 3, 2017

Around 650 trees on campus were the victims of cyclone Vardah. Most of the damaged trees were non-native. Thanks to the insight about tree plantation, more native trees were planned to restore the green cover. INR 25 lakhs was collected for planting new trees by raising an appeal.

The "Tree Plantation" event was held on 13th of October, 2017. Around 30 volunteers from Wells Fargo and United Way helped in Phase 1 of this program. Around 600 out of 1200 trees have already been planted in the campus.

November 3, 2017

Successfully completed the Phase 1 of Tree Planting, as per the planned schedule keeping in mind the arrival of monsoons

Approx. 600 trees were planted – Each costing Rs.2000 (includes the cost of a sapling, tree guards, labour, and maintenance)

The "Tree Plantation" event was on Nov 3, 2017

Phase 2 will also be in similar scale, planned to be held in 2018, where again 600 trees will be planted

Daan Utsav

Daan Utsav- the Joy of Giving Week was celebrated during 2nd-8th October, 2017 by the Institute Branding Cell with the help of the volunteers among the Institute's students. Financial support was given by the International and Alumni Relations (I&AR) office.

The event started off with a Thanksgiving Lunch for the Institute support staff, which, like last year was a huge success in terms of turnout and SMILES.

The food was served to over 500 support staff including security guards, cleaning crew, mess workers, and others. 15 student volunteers helped in distributing the food to these people.

The event was a huge success and recorded a footfall of over 1000 at the place where the event was conducted. People relished the Joy of Giving.

On 7th October, the team went to the Velachery Railway Station to beautify a wall under the MuRail project. This happened over a span of two days with external volunteers also helping out. The Fine Arts Clubs pitched in by rounding up about 20 volunteers from their network.

The IViL decided to give a completely different type of 'Daan'. They demonstrated simple science experiments to the students at the Government Higher Secondary School, Melakondaiyaar, with an aim to deepen their interest in the world around them.

Deepak Parekh Institute Chair Launch

All IIT Deans Meet

2017

The Deepak Parekh Institute Chair was launched on April 12th in the IC & SR Auditorium. It has been endowed by the 1981 batch alumni. The occupant of the Chair is Prof. T. Pradeep, Chemistry Department.

In his EML talk, The Future of India, Shri. Parekh, Chairman, HDFC, stressed the importance of getting back to basics for finding superior ways to fund the country's infrastructure requirements.

The "All IIT Deans Meet" (Alumni & International Relations) was held in IIT KGP on March 17th and 18th, 2017.

Alumni and International Relations office bodies from the various IITs attended the event. They highlighted current initiatives and future plans for alumni engagement and fund rising in their respective IITs. Valuable insights and different perspectives about alumni engagement emerged.

2018

All IIT Deans' Meet was held from 23rd–25th January, 2018 at IITM Guwahati. The theme for the meeting was "Alumni, Startups and Entrepreneurships".

I&AR Deans from all IITs' attended the meet. Prof. Rakhi Chaturvedi, Associate Dean, IITG welcomed the gathering.

The CFI Open House

CFI was set up in 2008 with funds donated by the batch of 1981 and other alumni.

"The CFI Open House" was held on October 8, 2017. This is an annual event showcasing the recent work and achievements of our innovators, providing an opportunity for them to network with potential facilitators and mentors in entrepreneurship and technology.

Since inception, it has grown as a hub for innovation, nurturing hundreds of student-proposed projects that have bagged honourable awards in internationally recognised competitions and been acknowledged as some of the nation's most promising startups.

This year, the Open House displayed the work of the Institute's three internationally acclaimed competition teams: Team Anveshak's Mars Rover, Team Abhiyaan's Autonomous Vehicle and Team Raftar's Race Car. Many of our alumni contributed towards these competitions.

Other Events

IITM Bay Area Alums' 'Happy Hour' Social, with spouses - Casino Nite was hosted by IITMF on February 5.

Heritage Centre Day

2017

"Heritage Centre Day" was celebrated in the IC & SR auditorium on March 6th, 2017.

Prof. Rohit Manchanda, IIT Bombay spoke on "Historicizing an IIT: Insights and Auguries". He released the Heritage Trails app designed by the Mobops Team.

Dr. R. Mahadevan [1964/BT/ME & 2003 DA] unveiled the model of Gajendra Circle and spoke on 'life in his student days'. Giridhur also made some remarks about Gajendra Circle.

Prof. Manivannan elaborated on the proposed "Experiential Tech Musuem" at the Periyar Science and Technology Centre.

2018

Heritage Centre Day was held on Mar 3, 2018.
Alumni, faculty (current & retired), students, and campus residents attended and had a chance to view the exhibits.

Launch of Gopalakrishnan Deshpande Centre

The Gopalakrishnan Despande Centre (GDC) was launched on January 11th. Dean I&AR Prof. R. Nagarajan welcomed the gathering.

Kris Gopalakrishnan [1977/MSc/PH & 1979/MT/CS – 1998 DA], Deshpande [1973/BT/EE – 1998 DA] and Jaishree Deshpande [1975/MSc/PH] gave the ceremonial cheque of USD 1 Million towards GDC.

The GDC Centre for innovation and entrepreneurship will pave the way for more teaching, research, product development and policy-making initiatives.

Naveen Jha spoke about the Deshpande Foundation in India and the Sandbox Centres. Raj Melville (IITB alumnus) spoke about the centers in the US & Canada.

Dr. Tamaswati Ghosh, Prof. Mahesh & Prof. Ashwin spoke about the innovation and incubation ecosystems at IITM.

Remarks about GDC were made by Director Prof. Bhaskar Ramamurthi.

Kris Gopalakrishnan, Deshpande and Jaishree Deshpande visited the CFI open house and interacted with students and faculty.

IITM Stadium Inauguration

Prem Watsa [1971/BT/CH], Chairman of Fairfax Financial Holdings, inaugurated the renovated IIT Madras Stadium on May 3rd, 2017.

His generous contribution has enabled the Institute to renovate the Institute's stadium and construct a state-of-the-art 400-meter, 8-lane synthetic track inside. The donation was made in memory of his father Manohar C Watsa.

In his speech, Director, Prof. Bhaskar Ramamurthi mentioned that Prem Watsa was the 1971 Sports Secretary. Dean I&AR, Prof. Ligy Philip & Prof. Santhosh also attended the inauguration and thanked him for his generous contribution.

First Registrar R Natarajan's Remembrance Event

An event to remember R Natarajan, First Registrar of IIT Madras who passed away recently, was arranged on 5th August 2017.

Prof. Bhaskar Ramamurthi, Director, IITM, friends and family members of R Natarajan, I.A.S. (Retd.) and Prof. R Nagarajan, Dean, I&AR were present at the event.

The attendees spoke about him and shared beautiful memories in honor of him. A minute's silence was also observed in memory of R Natarajan, on AlumNite 2017.

Dean, I & AR Visit to the U.S.

IITM Summit Bay Area

The trip to the US included one week in Southern California with visits to Los Angeles and San Diego specifically to USC and UCSD where there was good interaction with alumni. The later visits to UC Berkeley and Stanford, where there were interactions with prospective faculty applicants proved beneficial.

The 4 weeks spent in the Bay Area included various meetings with alumni—one-on-one, small groups and batches.

Visits to Qualcomm, Microsoft, Google, and VMWare were engaging.

Meetings were also held with the IITM Foundation & IITMAANA office-bearers.

During the three days in the New York and New Jersey areas, Dean (I&AR) and the Director, IITM made visits to NYU Stern School, Cornell Tech. They also attended Alumni Chapter Meetings and interacted with prospective faculty applicants.

Hosted by: IIT Madras Foundation

Venue: Marriott Santa Clara, CA

Organized by: IITMF Team of Volunteers, primarily IITM Alumni in the Bay Area

Participants: 154 registered attendees

IITM Faculty visiting from Chennai: 15

Invited Industry Experts and Academia: 22 (from Bay Area & US)

IITMIC Founders: 7 (invited from Chennai)

Attendees: 110 (mostly IITM alumni)

Sessions:

★ Plenary presentations by 3 IITM faculty
★ Smart Medicine
★ Artificial Intelligence and Analytics
★ Smart Buildings and Infrastructure
★ Smart Agriculture
★ Smart Manufacturing
★ Smart Energy
★ Entrepreneur Showcase
★ Q & A with Director & Dean on IITM

Indian Additives Limited

IViL Cycle Donation 2016–17

A meeting was held between the team from Indian Additives Limited (IAL), Director, Dean – I & AR and the Development Office team on 17 July 2017.

A cheque for INR 31 Lakhs was handed over to the Director, IIT Madras by IAL in support of "Sustainable Waste Management and Resource Recovery for Clean and Healthy Villages".

A gift of honour was given to the IAL Team, by the Director of IIT Madras.

The graduating students were made aware of the project through the IViL cycle donation stall at Wilkommen farewell event arranged with the help of IITMAA.

The donors were listed on spreadsheets and a representative from each hostel was selected to handle the activities of the project.

A total of 147 cycles were collected and moved to the villages with a view to organize repairs under the supervision of the villagers.

The repair of 125 cycles was monitored by the IViL group. The project was supported partially by the International and Alumni Relations office from IViL side and TVS-SSN Trust.

These cycles were donated in villages in the Veypampattu and Thiruninravur areas. Most of the cycles were given to girl students who were walking around 3-5 kms every day to school. They were deeply thankful and said that the cycles were a motivation for them to go to school.

With a view to identifying more villages and beneficiaries, 22 cycles were also distributed in villages near Cheyyur with the help of Sevai Karangal.

Inauguration of the new Mehta Bio-Tech Block II

Block II of the Bhupat and Jyoti Mehta School of Biosciences, Department of Biotechnology, was inaugurated by Jyoti Mehta in the presence of Dr. Soumya Swaminathan, Director General, Indian Council of Medical Research (ICMR), Prof. Bhaskar Ramamurthi, Director, IIT Madras, Rahul Mehta, CEO, The Mehta Family Foundation, and other faculty members, on 09 October 2017.

Dr. Soumya Swaminathan, Prof. Bhaskar Ramamurthi, and Prof. D Karunagaran, Head, Department of Biotechnology, thanked the Mehta Family for their continued support and involvement in shaping IITM's future.

Prof. R. Nagarajan, Dean, International and Alumni Relations, expressed his gratitude and appreciation for the Mehta family's sustained association with the Institute.

The major additions in Block II are one, the National Cancer Tissue Biobank, a state-of-the-art non-profit community based tissue bank, which is a joint initiative of the Department of Science and Technology, Government of India, and IIT Madras. Second is the Animal House which is a small facility where drugs can be tested on rats, mice, rabbits and guinea pigs before certifying them for human use.

The Animal House is mainly for research in the medical biotechnology area specifically for cancer, cardiovascular diseases, HIV, tuberculosis and stem cell biology especially.

Emerson Centre for Advanced Studies

The Lab in the Emerson Centre for Advanced Studies was inaugurated by Ram Krishnan, Group President, Emerson Automation Solutions, on December 27, 2017. Emerson has contributed Rs. 14.22 lakhs towards this lab.

1st IBSE International Symposium

The first International Symposium was organized from 22nd–24th January, 2018.The event was attended by people from all over the country, and a faculty each from IITG and IITKGP.

Invention to Innovation. Disciplined Thinking.

Carbon Zero Challenge

A three-hour "Interactive Workshop" was held on May 25th, 2017 hosted by The Gopalakrishnan Deshpande Centre for Innovation & Entrepreneurship.

A lecture on 'Hands-on Tool Application' was given by Dr. Ripi Singh, Professor at Indian Institute of Science, Bangalore.

Carbon Zero Challenge, funded by Virtusa Polaris, was held from 7th–9th February, 2018.

IIT Madras in association with the US Consulate General Chennai, organised the Carbon Zero Challenge 2017–18 among college students of the southern states of Tamilnadu, Karnataka and Kerala, and the Union Territories of Pondicherry and Andaman Nicobar Islands.

25 teams out of 531 registered teams were selected to showcase their products on demo day — 9th February, 2018. The exhibition was attended by experts from industry and academia.

The entrepreneurship journey for the best 5 teams will be sponsored.

Finalists CZeroC 2018

Deshpande Gopalakrishnan Symposium

Faculty Recognition Luncheon

The first Deshpande–Gopalakrishnan Symposium on Innovation and Entrepreneurship was held from 28th–30th January 2018.

The Faculty Recognition Luncheon was held on March 3, 2018 to express gratitude for the pivotal role they play in supporting fund-raising activities and international relations. More than 30 faculty attended the event.

Open Day at IIT Madras

Alumni Relations office coordinated with the academic section and organized the "Open day @ IIT Madras" on June 2nd, 2017

The event was a first of its kind. The vision behind it was to make prospective UG students aware of "Life at IIT Madras" and answer any questions they many have. The top 300 rankers of JEE Mains 2017 were invited. A total of 67 out of 300 students registered. 33 students attended the event together with their parents.

Distinguished Service Awards

The Annual General Meeting of IIT Madras Alumni Association was held on 26th August 2017, at Hotel Crowne Plaza.

The 6th Annual IITMAA Awards were given to two faculty of IIT Madras.
–Prof. David KoilPillai (B.Tech, Electrical Engineering, 1984) was awarded the "Distinguished Service to IIT Madras"
–Prof P Sriram (B.Tech, Aero, 1982) was awarded the "Distinguished Service to IIT Madras Alumni Association"

Meet with Prof. M S Ananth Endowment Fund Beneficiaries

The Prof. M S Ananth Endowment Fund Beneficiaries' meet was held on 17 September 2017.

In 2017, 52 children of the IITM campus Self-Help-Group staff, were given support for their tuition fees through this scheme–a total of Rs 9.97 lakhs.

33 parent participants and 43 beneficiary students participated in this meet.

A motivational talk was given to these students to encourage them to study well and prosper.

The meet ended with a feedback and photo session.

CCBR Winter Course on Machine intelligence and Brain Research

The CCBR Workshop was held from 2nd to 7th Janaury 2018 and attended by over 250 delegates. They had the opportunity to listen to informative talks by over 25 esteemed speakers over the course of five days.

2nd PAN IIT Bio Tech Meet

Faculty Association Dinner

The Department of Biotechnology and the Bhupat and Jyoti Mehta School of Biosciences organized the 2nd PAN IIT BIOTECH MEET-2017, sponsored by The Mehta Family Foundation (USA) in association with IITM Alumni, from 5th to 7th October 2017 at The International Centre, Goa.

The aim of the meeting was to bring researchers, faculty, and expertise from the different IITs, IISC, biotech and bio-pharmaceutical industries to a single platform for discussing recent developments and challenges in synthetic biology and cardio vascular disease.

The meeting opened with a welcome address and introduction of the Meet by Prof. Rama Shanker Verma, the organizing secretary.

The first session on "Synthetic Biology" was chaired by Prof. Karunagaran, HOD-Department of Biotechnology, IITM; the second session by Prof. P N Rangarajan, IISC Bangalore; the third by Prof. Partha Roy, IIT Roorkee and the fourth by Dr. Rakhi Chathurvedi. Lectures were also given on various topics.

The inaugural function was presided by the Chief Minister of Goa accompanied by the Mehta Family Foundation, DBT Secretary and IIT Madras along with the participant delegates who were about 50 in number.
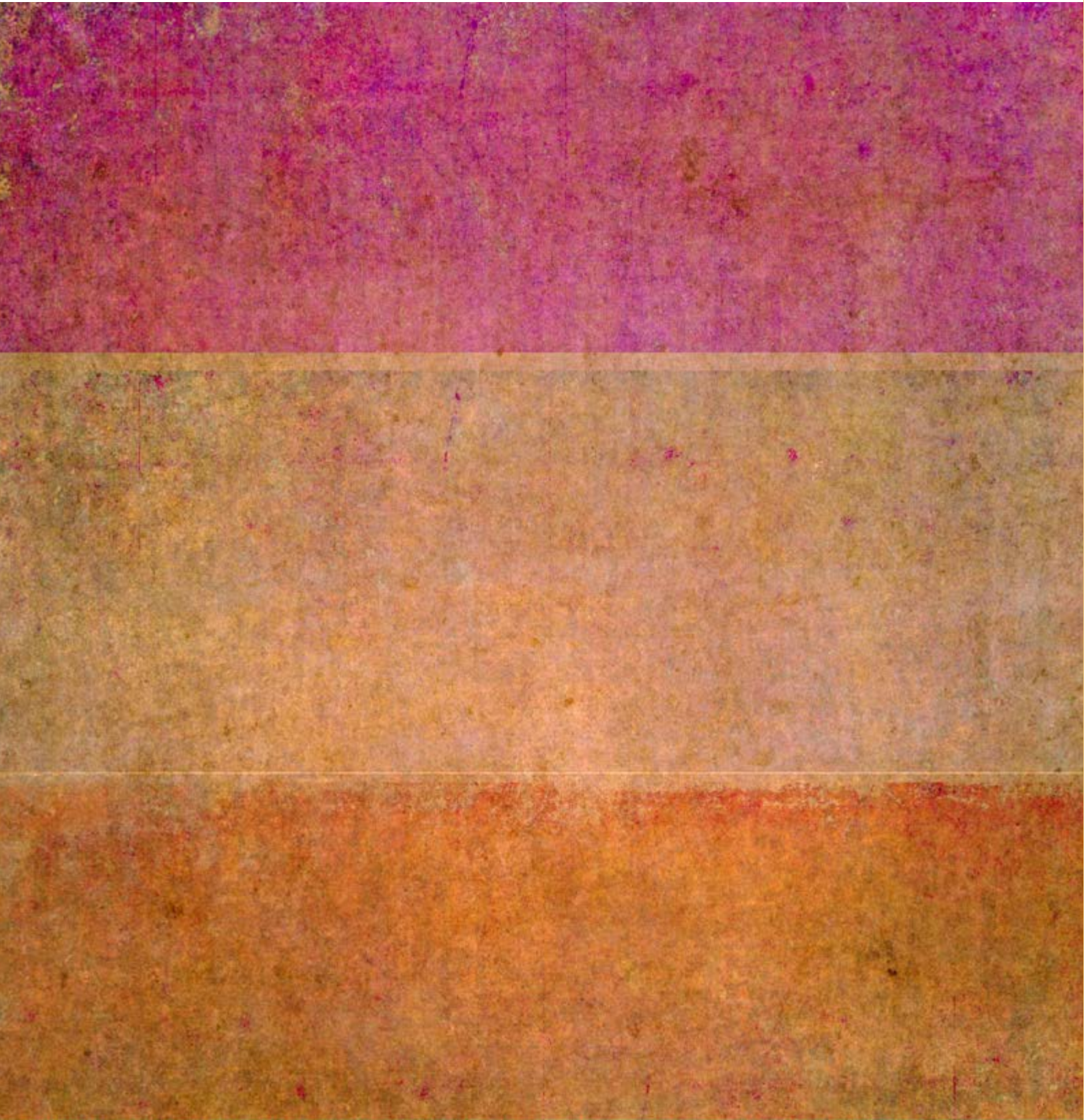
Faculty Association dinner, partially sponsored by Alumni Relations office was held on Nov 25, 2017.

IITM Faculty attended the event with their families.
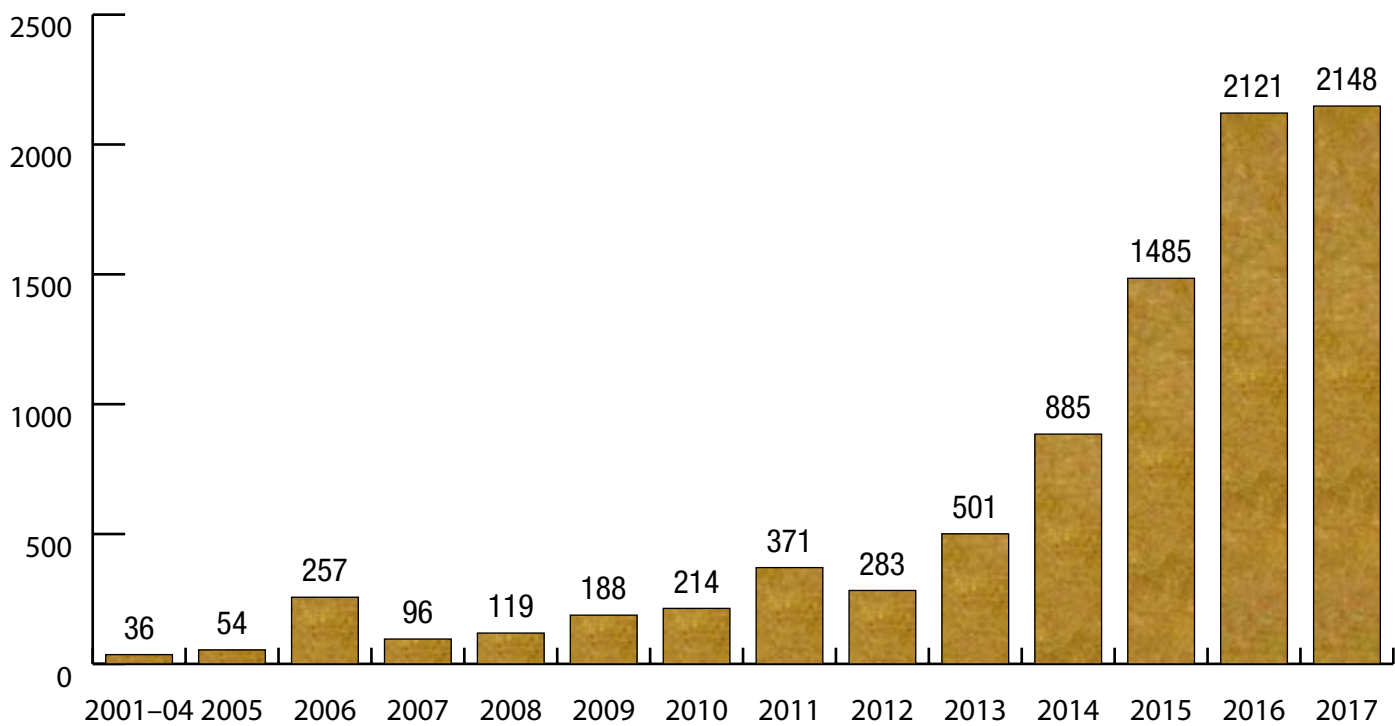
FINANCIALS

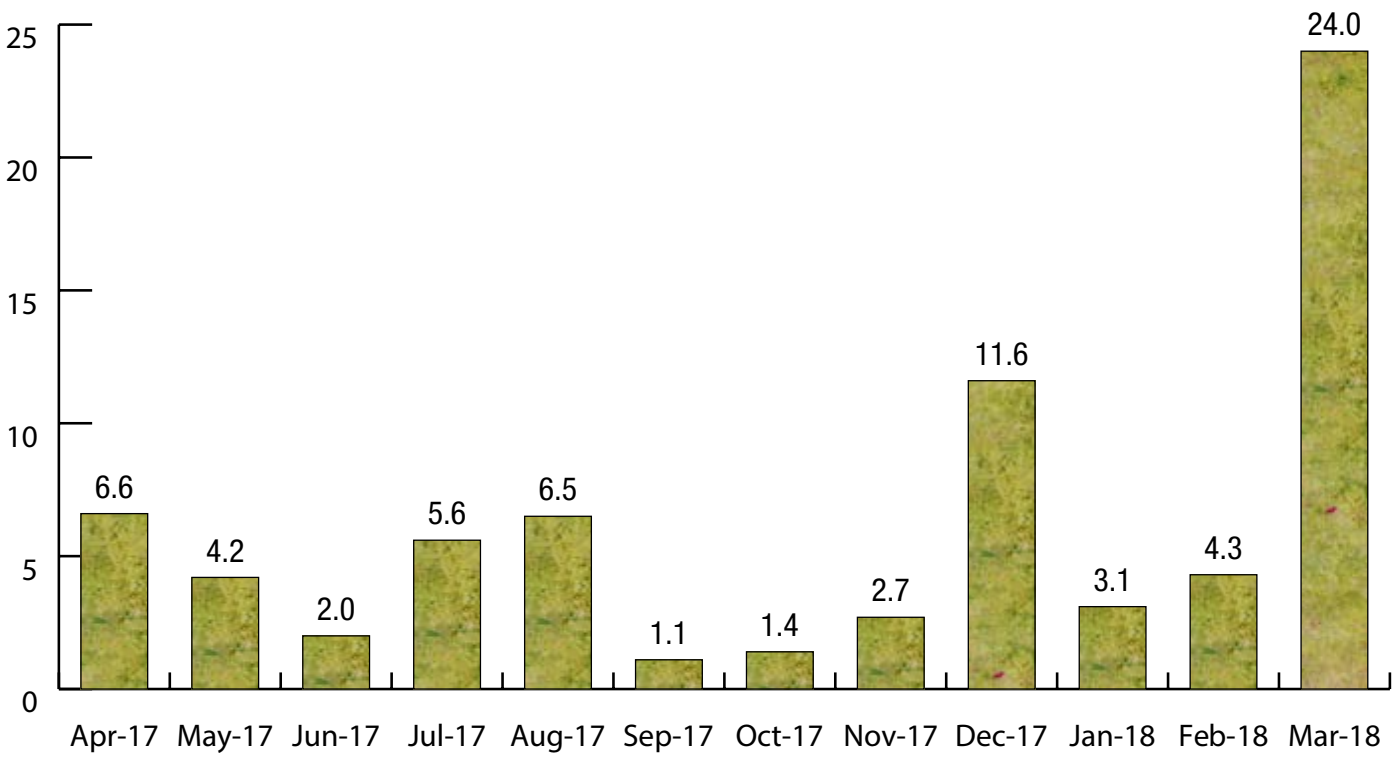Yearwise New Donors 180

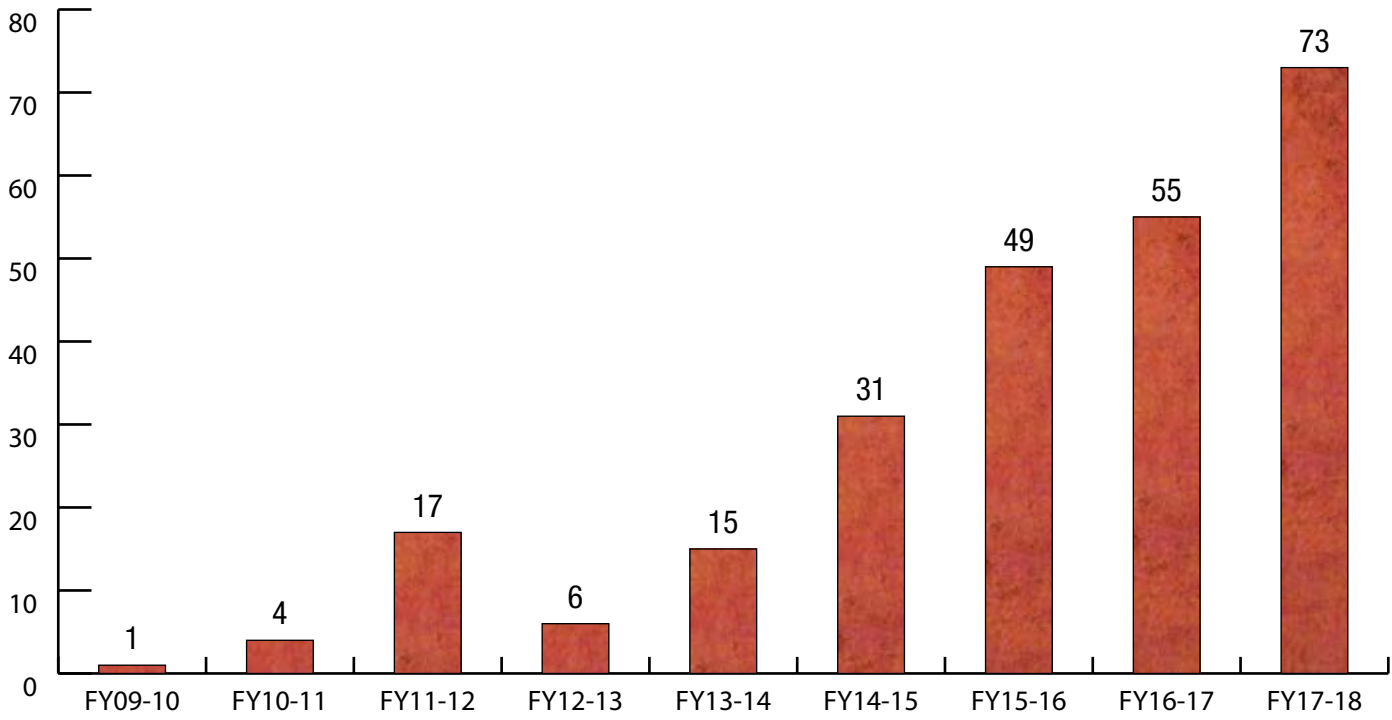Monthwise Receipts 181

Yearwise Receipts 181

Yearwise New Donors

Year	New Donors
2001–04	36
2005	54
2006	257
2007	96
2008	119
2009	188
2010	214
2011	371
2012	283
2013	501
2014	885
2015	1485
2016	2121
2017	2148

Monthwise Receipts

(₹ in crore)

Month	Receipts
Apr-17	6.6
May-17	4.2
Jun-17	2.0
Jul-17	5.6
Aug-17	6.5
Sep-17	1.1
Oct-17	1.4
Nov-17	2.7
Dec-17	11.6
Jan-18	3.1
Feb-18	4.3
Mar-18	24.0

TOTAL DONORS FOR THE DECADE

Yearwise Receipts

(₹ in crore)

Year	Receipts
FY09-10	1
FY10-11	4
FY11-12	17
FY12-13	6
FY13-14	15
FY14-15	31
FY15-16	49
FY16-17	55
FY17-18	73

Office of International & Alumni Relations
II Floor, IC & SR Building, IITM
Chennai 600 036, India

Phone:
Alumni Relations: +91 (44) 2257 8379/90
Development Office: +91 (44) 2257 8371/78
International Relations: +91 (44) 2257 4926/27

Websites:
http://alumni.iitm.ac.in
https://joyofgiving.alumni.iitm.ac.in/
http://www.oir.iitm.ac.in