

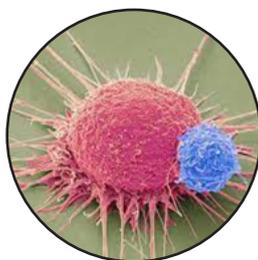


# Celebrating Generosity

**Dr. PRABHAKAR RAGHAVAN**



Indian Institute of Technology Madras  
Office of Alumni and Corporate Relations





**Prof . KAMAKOTI VEEZHINATHAN**

*Director, IITM*

*Our Gratitude to Dr. Prabhakar Raghavan from IIT Madras.*

IIT Madras, in the 63 glorious years of its journey, has been scaling new heights of success and excellence. This is reflected in many ways including in its exemplary performance for six years in a row, on the National Institute Ranking Framework released by the Ministry of Education, Government of India. Chosen as one of the Institutes of Excellence, IIT Madras has established a number of Research Initiatives in various fields of contemporary relevance showcasing the commitment towards fostering world-class research. In this continuing pursuit of academic and research excellence, we will continue to embrace innovative practices while promoting efficient, and effective governance through AI-driven hyper-automation.

The outpouring of generous support we have received in the past year from well-wishers such as yourself has been humbling. On behalf of the Institute, I offer you our deepest gratitude for keeping IIT Madras strong. I am confident that we will continue to make many positive strides and leaps forward with renewed vigor to achieve the goals that we have set out for us. Together, with your support, we are confident of creating an IIT Madras with a diverse group of faculty and staff pursuing nationally relevant and globally recognized research. If this past year has taught us anything, it's that it takes a dedicated and committed community to keep us moving forward — and far beyond. Thank you!



**Prof . MAHESH PANCHAGNULA**

*Dean, Alumni & Corporate Relations, IITM*

*Heartfelt thanks to Dr. Prabhakar Raghavan, Mrs. Srilatha Raghavan and Family from IIT Madras.*

“ Our aim to provide continued solutions to social problems on a global scale is realized through the sustained support of well-wishers such as you. We thank you for your contribution as we present a report of its impact. We hope to receive your help and support for our future endeavors to take IIT Madras to the global stage.”

## Dr. Prabhakar Raghavan

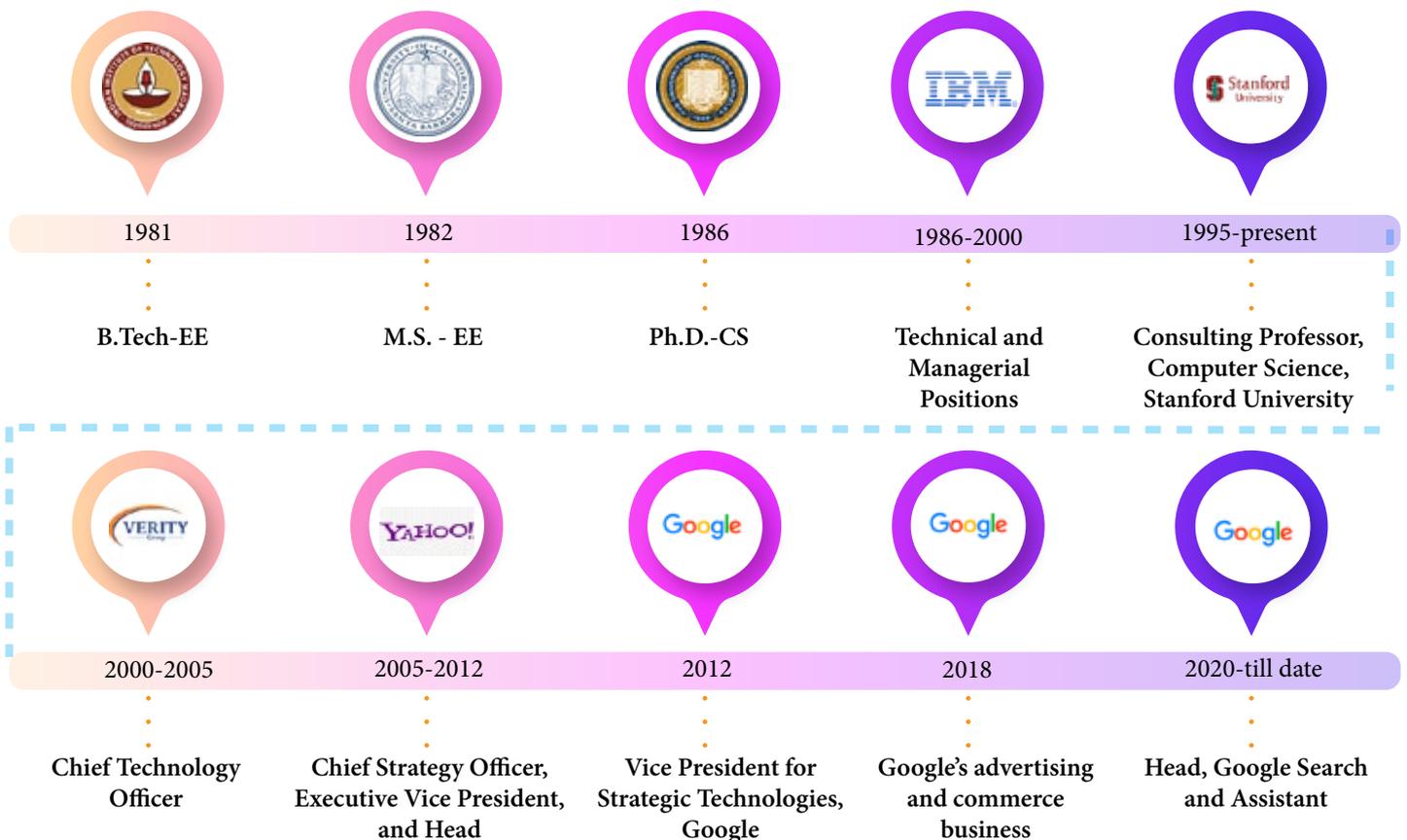
*1981 Batch, B.Tech, Electrical Engineering*



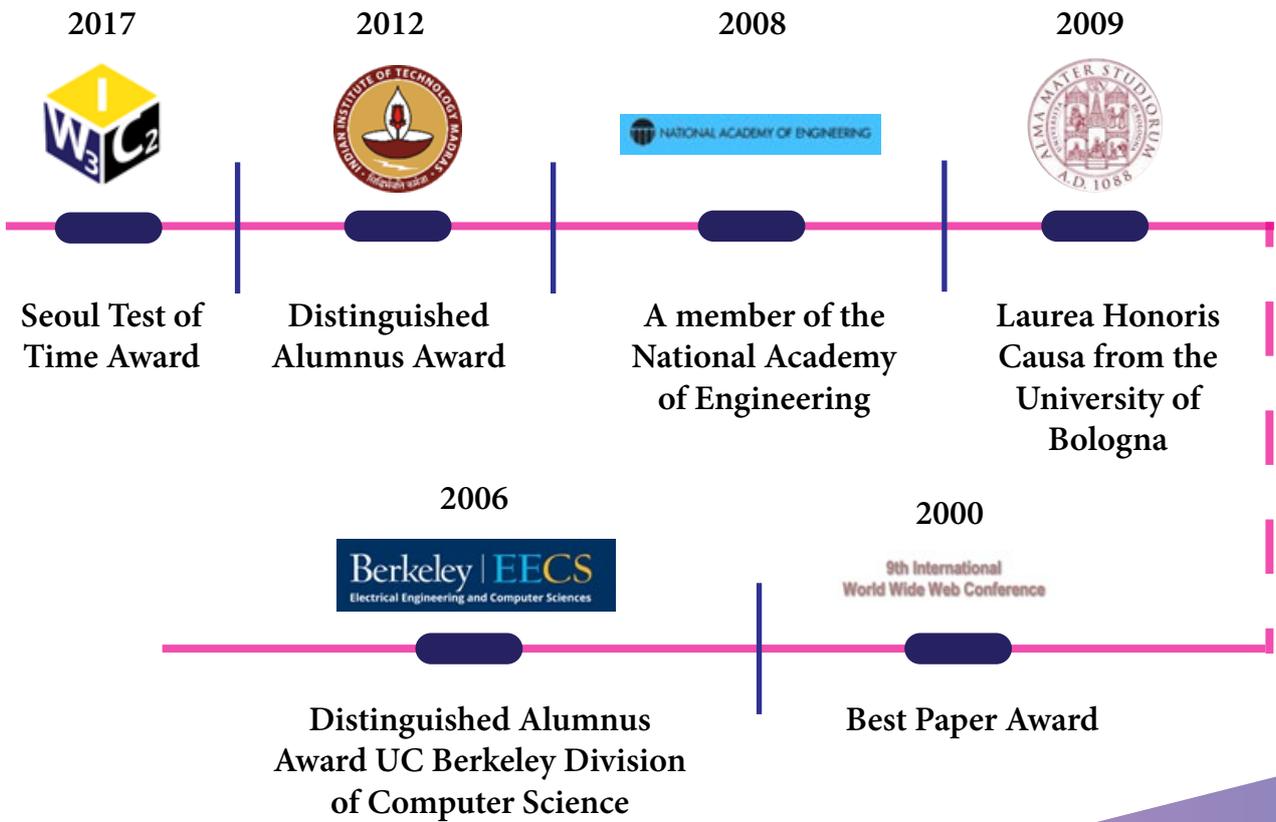
Dr. Prabhakar Raghavan is a Senior Vice President at Google and is responsible for Google Search, Assistant, Geo, Ads, Commerce and Payments products.

Considered as one of the foremost authorities on Search and is the co-author of two widely-used graduate texts: Randomized Algorithms and Introduction to Information Retrieval, Dr. Prabhakar has over 20 years of research spanning algorithms, web search and databases.

### *His Journey from being a student at IIT Madras to the Head, Google Search and Assistant*



## Achievements and Accolades of Dr. Prabhakar Raghavan

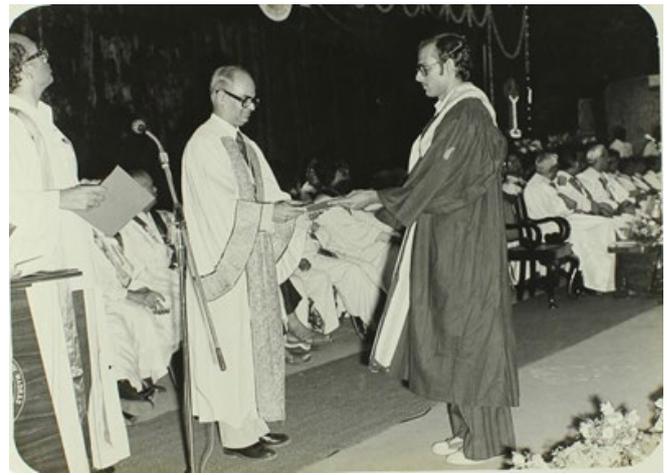


# A Walk Down Memory Lane... Then and Now



*18th Convocation – 12th August 1981*

**Then**



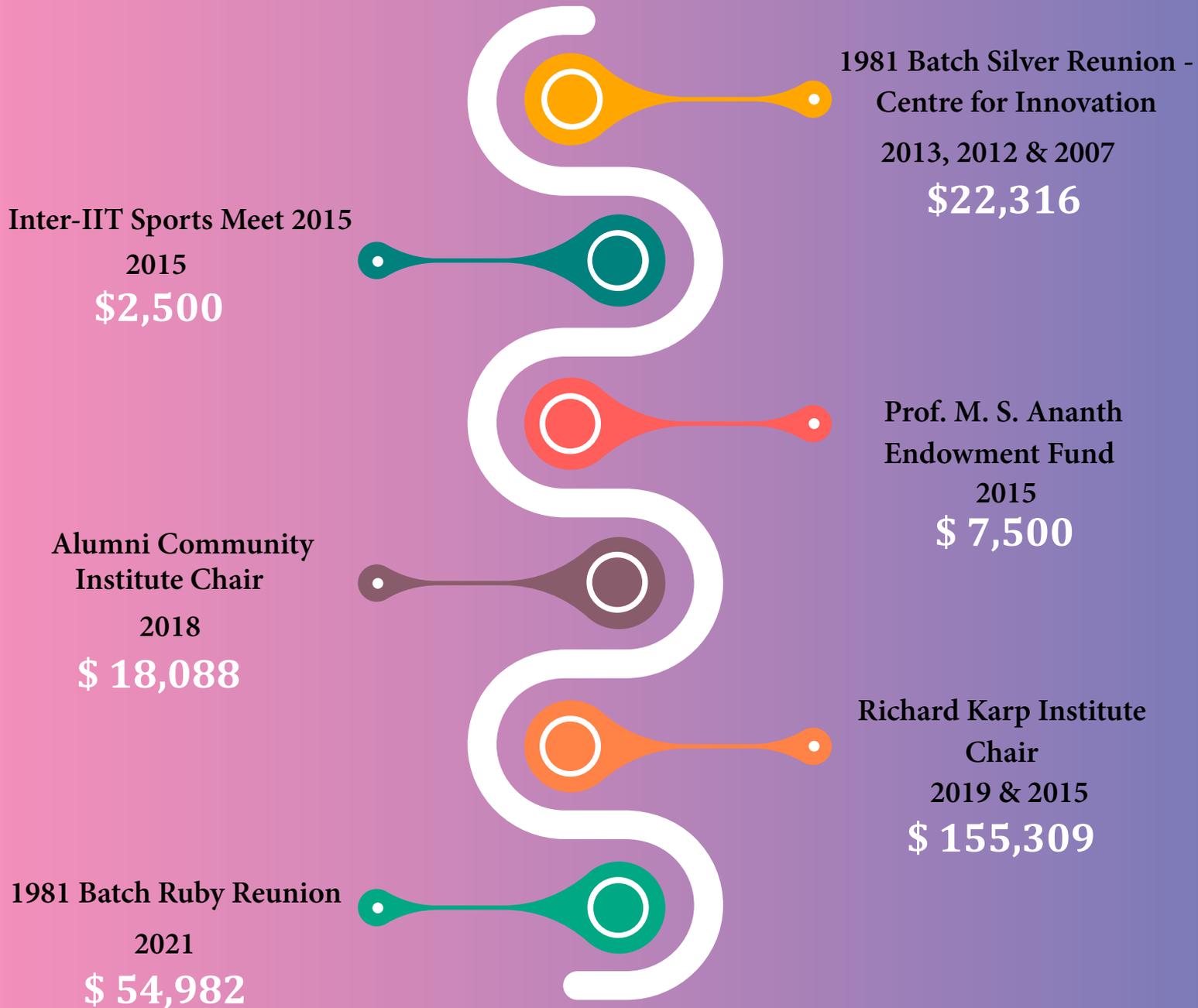
*58th Convocation - 20th November 2021*

**Now**



*Office of Alumni & Corporate Relations, IIT Madras*

## Summary of Your Contribution



## 1981 Batch Silver Reunion - Centre for Innovation



A **24x7 student-run lab** to nurture the creative output of the budding innovators of IIT Madras by providing an ecosystem complete with mentorship and financial assistance. At CFI, we offer a productive workspace, a comprehensive inventory, and ample guidance from faculty and senior students, making CFI a truly gifted asset for our students.

After more than a decade of the team's zeal and passion, CFI is now a house to 13 clubs, 4 competition teams and counting. These clubs' interests are spread over a wide spectrum primarily fostering innovation and invention in technology, with a focus on technologies aimed at contributing positively to the environment and to the society.

## CFI '21- '22 AT A GLANCE

PROJECTS ROLLED  
OUT  
**60+**

PEOPLE INVOLVED  
IN CFI  
**740+**

AVERAGE FOOTFALL  
PER DAY  
**100+**

INDUSTRY  
PROJECTS  
**8**

MoU's  
WITH INDUSTRIES  
**4\***

NATIONAL &  
INTERNATIONAL AWARDS  
**13+**

\* - In progress

## Highlights of 2021 – 22

### Avishkar Hyperloop

Making transportation faster. Safer and Sustainable



**2019:** We were the only Asian team at SpaceX Hyperloop Pod Competition. Finished in top-10 and met **Elon Musk**.



**Winner of Most Scalable Design Award**  
by Zeleros



**Rank #5 for Complete Pod Design Award**

**2021:** Won at European Hyperloop Week

### RAFTAR Formula Racing

Blood, Sweat, Gasoline



### Team Abhiyaan



Team Abhiyaan is currently working on these 3 projects:



Bolt

Bolt is an autonomous electric vehicle with control for a dynamic environment. It will be presented in the self drive challenge of IGVC.



MACRo

Team Abhiyaan collaborated with ExTeM to build a rover with an autonomous drilling unit.



Virat

Virat is an autonomous robot capable of navigating between 2 GPS waypoints carrying payload (AutoNav Challenge IGVC 2022).

The team is all set to participate in the **IGVC 2022 at Oakland University, Michigan, USA** - AutoNav and Self Drive Challenges scheduled to be held between June 3, 2022 - June 6, 2022.

## Chennai Water Logging

**Chennaiwaterlogging.org** is a platform that enables users/the public to report details such as flood location and water depth, as well as add photos of flood sites with a description across the Chennai region as frequently as possible. All reports are gathered onto a real-time flood map. The data gathered through this platform aims to improve disaster preparedness and response in communities by gathering, sorting, and presenting data of flooding reports.



It will help IIT Madras researchers to develop/design remedial measures that may be recommended to GCC, PWD and other relevant Govt. departments for their action.

## Summer School 2021



The Summer School 2021, which was conducted by CFI on an online platform between 7th July to 31st July, turned out to be a huge success in achieving its purpose. More than **200** sessions were organised by the different clubs of CFI which were actively attended by over **1200** participants, most of whom were freshies. The sessions were well-structured and planned out well in advance, with the aim to provide the students an exposure to a variety of topics in the attendee's domain of interest with regular assessments and tasks, **Industry experts** were brought in for session by 3D printing and iGEM clubs, to introduce the students to niche topics like metal 3D printing.

The recordings of these sessions are being posted on the **CFI YouTube Channel** to create a repository. The sessions were successful in embedding the concepts and creating a strong technical foundation among the students.

## CFI Open House 2022

Open House 2022, flagship event, a display of all the recent work and achievements of our in-house teams and clubs is scheduled to be held on **13th March, 2022**. The Open House will be the first of its kind, in hybrid mode - that is, through both offline and online platforms. The teams will be show-casing their projects, the result of a year of hard work and dedication.

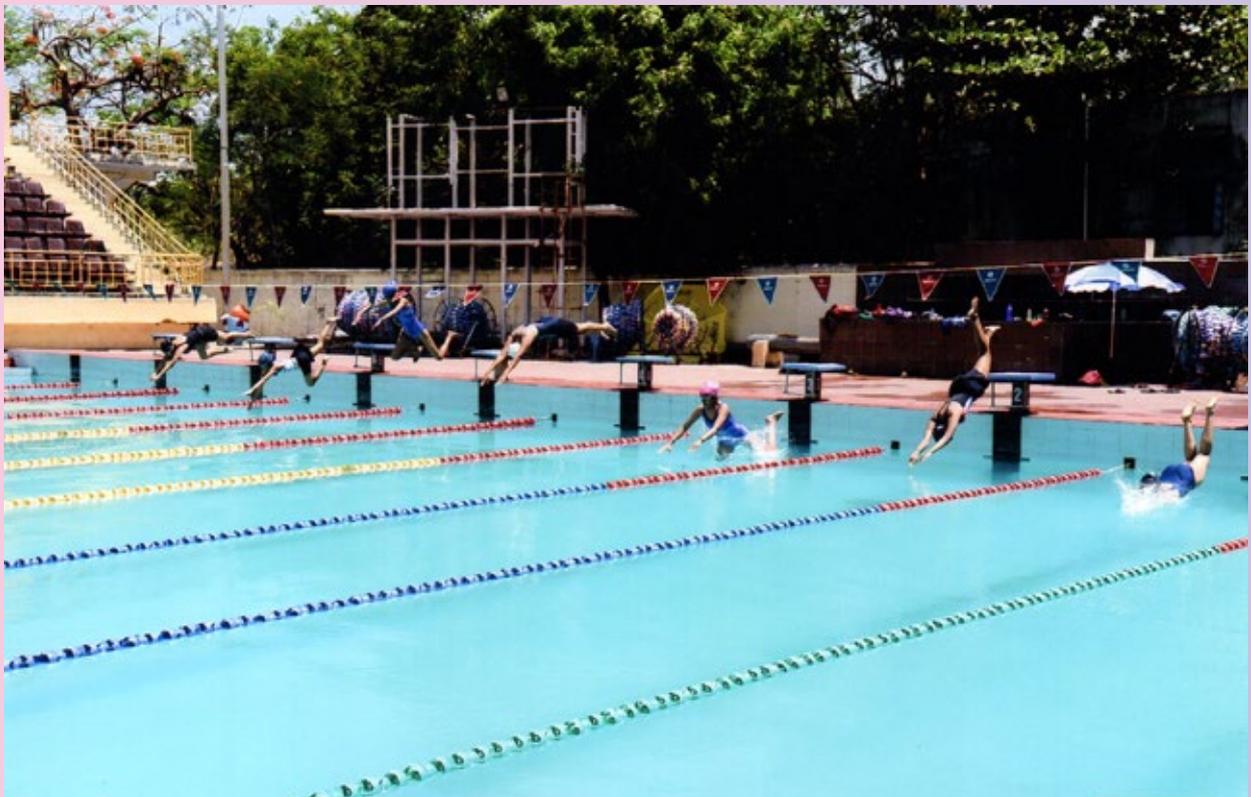
Please [click here](#) for the detailed report.

## Inter IIT Sports Meet

Only Inter IIT Aquatics Meet 2015 happened in IIT Madras and other sports meet has not happened because of the Chennai flood.

### *Inter-IIT Aquatic Meet 2015*

The Inter-IIT Aquatic Meet, comprising of Swimming and Water pool sports, was held between 1st and 4th of October, 2015. Chief Guest, Mr. Sebastian Xavier and Guest of Honour, Mr. Sharath Gayakwad inaugurated the meet. The theme of the meet is “The Underwater World” and all the major IIT's participated.



## Prof. M. S. Ananth Endowment Fund

This endowment instituted in 2011 in honour of Prof. M. S. Ananth, who was then Director of IIT Madras. He was well-known for his contributions to science and teaching, as well as his tireless efforts to develop higher education and research in India.

The interest accrued from this endowment supports two causes Socially Relevant projects & IITM Campus Welfare Trust Owzone Project

### Socially Relevant Projects



Prof. Prabhu Rajagopal  
ME Dept., IITM

**Project Title:**

HomoSEP: Robot for Homogenization of Contents and Cleaning of Septic Tanks



Prof. Meghana Nasre  
CSE Dept., IITM

**Project Title:**

Kidney Exchange — Models and Algorithms



Prof. Indumathi Nambi  
CE IITM

**Project Title:**

Low Cost Accelerated Micro Composting Centers



Prof. A Kannan  
CH Dept., IITM

**Project Title:**

Agro-Waste-Based Adsorbent Filter to Treat Textiles Dyeing Effluents in Villages



Prof. Palaniappan Ramu  
ED IITM

**Project Title:**

Energy Generation Using VAWT-Focus on Incorporating Modular Design and Low RPM Generation



Prof. Srinivasa Chakravarthy  
BT Dept., IITM

**Project Title:**

Publishing High-School Science Books in Regional Languages (Telugu and Tamil)

### IITM Campus Welfare Trust Owzone Project

In 2021, 44 children of the IITM campus Self-Help-Group staffs, have been given support of their tuition fees through this scheme.

#### Feedback from Beneficiaries

"We thank you for the fund which helps to pay my daughter's school fees in this pandemic situation. A heartfelt thanks to IIT Madras" ----- K. Chakravarthy

"My Daughter R. Nithya Sri is studying in Sri Sangara Vidhyasharam. We thank you for the generous fund, which you have, contributes towards her studies. This has helped us a lot" ----- R. Jayalalitha

"I am working as a sweeper in IIT Madras. We thank you for the fund, which helps to pay my son's school fees. A heartfelt thanks from my family members to IIT Madras" ----- M. Raji

[Click here](#) for more details about the beneficiaries

## Alumni Community Institute Chair

Prof. R. Nagarajan is the first occupant of the 'Alumni Community Chair' and he is currently Professor of the Department of Chemical Engineering at IIT Madras. He has been a visible face of IITM, with the alumni and corporate community for about a decade and elevated the institution's presence in the minds of alumni to great heights.

He obtained his B.Tech. in Chemical Engineering in 1981 from IIT Madras, and a Ph.D. in the same field from Yale University. He worked with IBM Storage Systems Development Laboratory in San Jose, and he joined IIT M in 2004. From Feb 2009 - Aug 2012, he served as Advisor, Office of Alumni Affairs at IIT Madras, and From Sep 2012- Sep 2018, as Institute's . first-ever Dean of International & Alumni Relations

### Research Priorities:

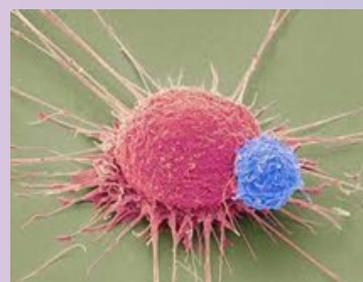
- Coal beneficiation using the ultra-sonic fields
- Nano emulsions of plant oils used for cancer treatment
- Dust-repellent surfaces and coatings for building exteriors

### Doctoral Research:

- One Ph.D. thesis defended in Jan2020 (Dr. Srivalli Hariharan)
- 2 Ph.D.'s currently co-Guided with Prof. T Pradeep on an industry-relevant project, and one External Ph.D. from CSIR under solo Guidance

### Post-Doctoral Research:

- Three post-doctoral Fellows being mentored currently
- They have developed a nano-scale emulsion of clove bud essential oil. Using a technique with potent anticancer and antibacterial activity



Prof. R Nagarajan and his team of scientists, Dr. M. Joyce Nirmala, Mrs. Latha Durai and Mr. Vineet Gopakumar developed formulation using clove oil to combat cancer. To view the video "IIT Madras researchers mark the dawn of a new age of anticancer medicine".

Please [click here](#) for more details.

## Richard Karp Institute Chair

Richard Karp Institute Chair was instituted in 2015 by the thoughtful contribution of Dr. Prabhakar Raghavan. The chair was named after Prof. Richard Karp, renowned computational theorist and Professor Emeritus at the University of California, Berkeley. Prof. Karp is most notable for his research in the theory of algorithms and is the recipient of Turing Award in 1985, The Benjamin Franklin Medal in Computer and Cognitive Science in 2004, and the Kyoto Prize in 2008. He has served on important academic positions including the founding Director of the Simons Institute for the Theory of Computing (2012-2017). Prof. Karp has made many important discoveries in computer science, combinatorial algorithms, and operations research. His current research interests include the area of bioinformatics as well.

*Richard Karp Chair Professorship was launched on 15th October 2019. Prof. Richard Karp along with his spouse attended the launch and has delivered a Lecture on "Computational Complexities in Theory and in Practice."*

### A few glimpses of pictures taken during the Chair Launch – Oct 15, 2019





### **Prof. C. Siva Ram Murthy**

**FNAE, FNASc, FNA, FTWAS, FIEEE**

(Currently, Visiting Professor of Computer Science at IIT Hyderabad)

First Occupant of the Richard Karp Institute Chair Professor  
Department of Computer Science and Engineering, IIT Madras

### **Introduction about Prof. C. Siva Ram Murthy**

Prof. C. Siva Ram Murthy earned his B.Tech. degree in Electronics and Communication Engineering from Regional Engineering College (now National Institute of Technology), Warangal in 1982, M.Tech. degree in Computer Engineering from the Indian Institute of Technology (IIT), Kharagpur in 1984, and Ph.D. degree in Computer Science from the Indian Institute of Science, Bangalore in 1988. Since September 1988, he has been with the Department of Computer Science and Engineering at IIT Madras where he is currently the Professor Richard Karp Institute Chair Professor. He has served as Head (Chairman) of the Department from 2010 to 2013 and held the Indian National Academy of Engineering (INAE) Chair Professorship (2012-2014).

### **Broad Areas of Research**

Wireless Networks, Real-time Systems, and Parallel and Distributed Computing

### **Current Research**

Resource Management, Reliability, Security Issues in 5G Networks

### **Brief Academic Accomplishments in the Last 6 Years (April 2016 -- March 2022)**

#### **Research Guidance and Publications**

- Guided 7 PhD and 2 MS (by Research) scholars to graduation.
- Published 36 research papers in reputed peer-reviewed international journals, and 15 research papers in refereed international conference proceedings.
- Filed two Indian patents.
- Published the textbook entitled "Parallel Computers: Architecture and Programming" (Prentice-Hall of India, India), 2016. Co-author: V. Rajaraman, IISc., Bangalore. This 2nd edition of the book on Parallel Computing is a very valuable compilation of all essential topics on Parallel Computing and most importantly the vertically integrated treatment of topics on Parallel Computing is the uniqueness of this book (which we did not find anywhere).

## Research Facility Created

An OpenAirInterface Based LTE/5G Testbed: This experimental test bed for traditional cellular and C-RAN based systems is a platform for conducting thorough end-to-end analysis of a system in a controlled environment and also for developing rapid prototypes to evaluate the efficiency of proposed enhancements. LTE/5G architecture is built using a set of interconnected complex systems. This experimental testbed helps researchers to deep dive into various aspects of the LTE/5G system rather than relying on complex simulations-based approach. The testbed is deployed using the Open Air Interface (OAI) software. OAI is open source implementation of LTE components conforming to Rel 8/Rel 10 standards. Their implementation of EPC, RU, CU, eNodeB can be run on general-purpose Intel/ARM computer systems. The testbed allows us to prototype and test various solutions. It contains the open-source implementations of fully standard-compliant LTE stacks.

## Honours, Awards & Affiliations

- He is an elected Fellow of Indian National Academy of Engineering (INAE), National Academy of Sciences (NASI), Indian National Science Academy (INSA), The World Academy of Sciences for the advancement of science in developing countries (TWAS, Italy), and Institute of Electrical and Electronics Engineers (IEEE, USA). And a recipient of JC Bose National Fellowship (2016-2026).
- (During 2016-18) Served as an Associate Editor of the IEEE Transactions on Mobile Computing and as a Subject Area Editor for INAE Letters (now Transactions of the Indian National Academy of Engineering) and is currently an Area Editor of Computer Networks (COMNET, Elsevier) Journal.
- Currently, Visiting Professor of Computer Science at IIT Hyderabad.

## Plans Ahead

- Resource management issues in space-air-ground integrated/6G wireless networks --- user association, spectrum allocation, interference and power management, service function chaining, task offloading.
- Decoding the Interplay between Cost, Energy, Latency, and Reliability While Provisioning Resources in Fog Computing Enabled IoT Networks.

# WE ARE GRATEFUL TO YOU!

Dr. Prabhakar Raghavan, Mrs. Srilatha Raghavan and Family



Thank you for your sustained generosity to IIT Madras over the years. Contributors such as yourself enable our students and Professors to dream big and work towards a better and brighter future. We hope you are proud of your alma mater and how it has remained steadfastly committed to academic and research excellence during and after your time here. You and your family have been instrumental in facilitating this significant growth.

Our efforts to nurture the culture of academic excellence that is the hallmark of IIT Madras - quality education, cutting-edge research, and unfettered creativity - shall continue. We are privileged and humbled to have you and your family walking with us along this trail. We wish you and your family the best always in all walks of life!



Indian Institute of Technology Madras, Chennai – 600 036  
[iitm.ac.in](http://iitm.ac.in)

For more information, please contact:  
Office of Alumni & Corporate Relations  
T: +91-44-2257 8390 | [acr.iitm.ac.in](mailto:acr.iitm.ac.in)

Stay connected:



Facebook



Instagram



LinkedIn



Twitter



YouTube