

Bharath Swaminathan

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Sr. Associate Engineer, Caterpillar India, EDC-I Chennai (May 2012 - Present)
Former Graduate Student, Purdue University (August 2010-March 2011)
Dual Degree, Indian Institute of Technology Madras (2005-2010)

bharathswami@hotmail.com

EDUCATION

Program	Institution	%/CGPA	Year of completion
Dual Degree, B Tech in Engg. Design with specialization in Automotive Engg.	Indian Institute of Technology Madras	9.13 out of 10	2010
PhD candidate in Dept of ME, Purdue University	Purdue University	3.43 out of 4	2010-2011

PROFESSIONAL EXPERIENCE

Sr. Associate Engineer	Caterpillar India Pvt. Ltd.	May 2012 - Present
FEA Analysis Segment, Project Leader, DM Fenner (India) Ltd.	Fenner (India) Ltd.	August 2011 - Apr 2012

SCHOLASTIC ACHIEVEMENTS

- Received Ross Fellowship/Assistantship at Purdue for Academic Performance for PhD programme (2010-2014)

COURSE WORK

- Technology, Invention and Innovation
- Mechatronic Systems
- Professional Ethics
- Linear Algebra and Optimization
- Calculus, Solutions of Ordinary Differential Equations, PDE and Numerical Methods
- Fundamentals of Operations Research
- Fluid Mechanics and Heat Transfer, Thermodynamics
- Introduction to Automotive Systems, Vehicle Component Design, Vehicle Dynamics, Automotive Structures, Tyre Mechanics
- Advanced Mechanisms, Kinematics and Dynamics of Machinery
- Acoustics and Advanced Engineering Acoustics
- Design courses - Functional and Conceptual Design, Detail Design, Design for Strength,
- Finite Element Analysis
- Advanced Math for Engineers (Purdue)

SKILLS

- Programming in C/C++ (Including OOPS), Wolfram Mathematica, MATLAB, HTML, Fortran
- Working with ProEngineer, AutoCAD, ABAQUS

SUMMER PROJECTS

- Six-month Industrial Training programme (part of curriculum) for Fenner India Ltd., Affiliated to JK-Tyre Limited (Jan-Jun 2006)
 - Finite Element Analysis and design optimization of an engine mount, a first time venture for Fenner India to make mounts for Ashok Leyland
 - Knowledge of ABAQUS-tool for FEA. Detailed analysis for various failed profiles of engine mounts and narrowing down to a final optimized profile that projected desirable results in the analysis – stress and strain energy values in reasonable limits, static and dynamic stiffness ratio corresponding to competitor sample
 - Experimental testing of final product gave stiffness values that were close to FEA results and competitor sample values. Experimental testing of the mount resulted in number of cycles being close to competitor's sample.
- Summer Internship for **Invention Labs-incubated** startup **PhiTesla** in Chennai, India (May-Jun 2008)
 - Involved programming a microcontroller for operating a LCD. The LCD was a new product launch, as a dashboard for bikes.
 - A thorough circuit design, with user interface was done. Knowledge of the working principles of LCD was acquired. New software and hardware related to microcontroller programming were learnt
 - A novel experience in working as a team to realize an industry problem
- Summer Internship at Emmeskay Systems (2006) (May-Jul 2006)
 - Involved coding and modeling in Simulink and Matlab
 - Developed a code to relocate simulink model blocks, in an aesthetically pleasing form
 - Developed algorithm to find the influence of Global variables on any given variable in any C/C++code

My final year project extensively involved programming - wrote a program for carrying out Finite Element Analysis of tyre-tread compounds. At Fenner, I had been involved in doing FEA analyses for a host of products (rubber-based) in order to aid the internal design team. It has proven to be crucial in helping in the design of an Anti-Vibration mounts, predicting radial loads in oil-seals, friction torque values, compression of gaskets and shrinkage in seals. Currently, I am working with Caterpillar India Pvt. Ltd. in code development for their internal softwares. I had attended a job training at their facility in Mossville, Illinois.

POSITIONS OF RESPONSIBILITY

- Teaching Assistant for Vehicle Dynamics Lab, Engineering Design Department, IIT Madras (2009 - 2010)
- Table Tennis Captain of my Hostel at IIT Madras (2006 - 2007)
- Senior Associate Engineer, Caterpillar India Pvt. Ltd. (May 2010 – Present)

CO-CURRICULAR ACTIVITIES

- Accredited with Certificate of Merit at the 'Spring 2011 Problem of the Week' organized by Department of Mathematics, Purdue University
- Active interest shown in programming at IIT Madras, finalists on two occasions in contests organized at the collegiate level.
- Best Fresher award in Breakthrough 2005, intra-IITM Business Plan Competition (Dec 2005)
- Part of the team that cleared the intra-IITM stage of the Brunel Design Contest conducted by Brunel University, West London (2006)

EXTRA-CURRICULAR ACTIVITIES

- Active participation in table tennis tournaments at IIT Madras (2005 to 2008)
- Know Basic Spanish - with first class certificate (June 2011)
- Winning team in the Pot-Pourri Event conducted at Caterpillar India Ltd. (August 2012)