



Govindaraju Pavan Bharadwaj  
Mechanical Engineering  
Indian Institute of Technology, Bombay

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UG Third Year (B.Tech.)  
Male  
DOB: 01-03-1992

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2012	8.76
Intermediate/+2	IPE	Vijaya Ratna Junior College	2009	94.10
Matriculation	APBSE	Little Flower High School	2007	90.50

## INTERESTS

Combustion - Analytical and Numerical, Parallel Algorithms, Numerical Methods, Computer-Automated Design.

## PROJECTS UNDERTAKEN

- **Effect of Numerical Methods and GPU aided computations on DNS for Reacting Flows**  
**Location:** Aerodynamisches Institut, RWTH Aachen, Germany [Summer 2011]

This was done during my stay in RWTH Aachen during Summer 2011 which was invited by Dr. -Ing Wolfgang Schröder. A DNS code for reacting flows was modified so that it could compute using custom finite-difference schemes. My task also involved modifying to use GPU capabilities using CUDA. Trends in error reduction due to various schemes and runtime reduction due to GPU were then noted and found to be significant.

- **Estimation of Heat Release Rate using Flame Surface Density**  
**Guide:** Dr. Santosh Hemchandra [2011 & Spring 2012]

Turbulent flames can be described as an ensemble of thin flamelets. Attempts are being made towards discovering a closed-form expression for heat release rate using flame surface density for turbulent premixed flames with acoustic forcing.

- **Design & Implementation of Algorithms for Automated Design-for-Manufacturing for Castings**  
**Guide:** Mr. Baba Prasad Lanka [Autumn 2011 & Spring 2012]

This is being done as part of the agenda of 3D Foundry Tech, which is an incubate of SINE-IIT Bombay. Our task is to automate DFM using C# and SolidWorks API. Completed codes have so far borrowed from existing algorithms and focus was more on implementing optimized variations.

- **Design of Gas Injector for CNG-Direct Injection Engine using Piezoelectric, Thermoelectric and Electromagnetic Principles** [Spring 2010]

This was a finalist in the nationwide Industry Defined Problem competition conducted by Mahindra and Mahindra during Radiance '10. It involved making detailed models and simulations using ANSYS and Solidworks in order to confirm the design. It was also the only entry made by a freshman and was well received by the judges.

## COURSE PROJECTS

- **Computer Programming & Utilization – Fingerprint Detection for Academic Purposes**  
This project is now being implemented in IIT Bombay as the Biometric Attendance Policy. It was the combined effort of enrolled students and my contribution was towards recognition of differentiating features.
- **Engineering Metallurgy - Materials for Jet Engine Turbine Blades and its Manufacturing Processes**  
This project involved the cost-independent analysis of elements appropriate for the turbine blades due to its application in the defence sector. The final composition was then compared with existing alloys.
- **Manufacturing Processes II – Modeling of Hydrodynamic Nanopolishing**  
This project involved improving existing mathematical models for hydrodynamic polishing by using data fits for variation of physical properties in order to account for behaviour of slurry particles.

## ADDITIONAL COURSES\*

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Combustion I (ST – RWTH Aachen), Algorithms & Complexity(ST), Discrete Structures(M), Data Structures(M), Operating Systems(M), Combinatorics (E), **Design & Analysis of Algorithms**(ST), **Computer Networks**(M)

\* **ST** = Sit Through, **M** = Minor, **E** = Elective, in bold – will be completed by May 2012.

## TECHNICAL SKILLS

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<b>Languages</b>	:	C, C++, C#, Visual Basic, JAVA, HTML, $\text{\LaTeX}$
<b>Libraries</b>	:	SolidWorks API, nVidia CUDA, OpenGL, OpenMPI
<b>Packages</b>	:	AutoCAD, SolidWorks, ANSYS – (Multiphysics, FLUENT, ICEM CFD), MATLAB
<b>Presentation</b>	:	Adobe Flash, Microsoft Powerpoint
<b>Web and Graphics</b>	:	Adobe Photoshop, Dreamweaver, Microsoft Frontpage

## ACADEMIC ACHIEVEMENTS

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- Secured the **Silver Medal** in the **International Junior Science Olympiad-2007** held in **Taipei, Taiwan**.
- Secured an **all India** rank of **18** (top 0.00002%) in **AIEEE-2009**
- Secured an **all India** rank of **72** (top 0.0003%) in **IIT-JEE-2009**.
- Was awarded a **Gold Medal** for participation in the National level **Chemistry Olympiad** Orientation and Selection Camp(OCSC)-2009 conducted by HBCSE (Homi Bhabha Centre for Science Education)
- Was awarded a **Gold Medal** for participation in the National level **Astronomy Olympiad** (OCSC)-2007 conducted by HBCSE.
- Awarded a grade of exceptional performance **AP** in one course of the undergraduate programme (**Modern Physics**).

## SCHOLARSHIPS

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- Awarded the **NTSE** (National Talent Search Examination) scholarship, which is given to the top 1% students after a rigorous three stage evaluation including an interview.
- Awarded the **KVPY** (Kishore Vaigyanik Protsahan Yojana) scholarship by the **Indian Institute Of Science (IISc)**
- Awarded the **CBSE Merit Scholarship** for outstanding performance in **AIEEE-2009**.
- Secured **podium positions** in several national, regional level talent search exams and was awarded scholarships.
- Served as Teaching Assistant for **Linear Algebra** and **Differential Equations I** courses (Selection on merit basis)

## EXTRACURRICULAR ACTIVITIES

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### Literary Activities

- Interested in quizzing, speaking and creative writing and learning new languages
- Completed **Japanese Course** under native speaker by securing **A++ grade**. Also hold **JLPT N5 Certification**.
- Finished **2<sup>nd</sup>** out of **65000** participants in the national level **Aqua Regia Science Quiz**.
- Finished in **podium positions** in several quizzes in the **national** and **regional** level.
- Actively participated and won prizes in quizzing, speaking, writing competitions in the school and college level.

### Sports and Music

- Interested in Table Tennis, Badminton, Swimming, Cricket and Pool.
- Completed course on **Table Tennis** as part of my **NSO** during my first undergraduate year.
- Proficient in playing the **drum kit**. Also gave **live performances** in the university level.

## DECLARATION

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I hereby declare that the information given by me is true to the best of my knowledge, as of January 2012.