



Shruti Motiwale
Mechanical Engineering
Indian Institute of Technology, Bombay
Specialization: None

100100051
UG Third Year (B.Tech.)
Female
DOB: 15/09/1991

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2012	8.25
Intermediate/+2	CBSE	Spring Valley Public School	2009	85.40
Matriculation	CBSE	South Indian Cultural Association Senior Secondary School	2007	91.60

Summer Internship 2012

- **Analysis of Backhoe of an Excavator**
 - Case New Holland Construction Equipments Private Limited, Indore
 - Determined the **loading pattern** in all parts of the backhoe assembly
 - Determined the **stress distribution** in various elements of the **backhoe** based on the loading pattern
 - Developed a robust **computer program** in **MATLAB** for computing the loading pattern and stress distribution for various load conditions and configurations resulting in a quicker and easier process of analysis

Technical Projects

- **Formula Student UK:** A single-seater race car designing competition held by Institution of Mechanical Engineers
 - Currently working as a **Design Engineer, Drivetrain**, for **Formula Student UK-2013**, towards
 - Implementation of **integrated hub-joints** thereby reducing weight
 - Designing and simulation of **driveshafts**
 - **Fatigue and Fracture Analysis** of driveshafts, hubs and gears using Hyperworks and load history obtained by multi-body dynamic analysis
 - Implementation of **planetary gearbox**
 - Built India's **first Electric Race Car**, EVo1, for **Formula Student UK-2012**, and was involved in fabrication and integration of drivetrain assembly
- **BAJA-SAE India-2012:** A single seater **All-Terrain Vehicle** design competition held annually at NATRiP
 - Fabrication and integration of drivetrain assembly
 - Tested the vehicle under various conditions of loads and used the vehicle and engine rpm data to understand the **Continuously Variable Transmission (CVT)** characteristics.
 - **Tuned the CVT** to obtain maximum acceleration over given distance
 - The team won the **ANSYS CAE award**, was the lightest sustainable vehicle and second in acceleration event,
- **Potentia-Techfest'12:** Designed a mechanical robot with which could carry maximum table-tennis balls to the destination, drop them and come back to the original position using only stored mechanical potential energy in minimum possible time
- **Pandora's Box-Techfest'11:** Designed a mechanical robot which could expand in all directions using only stored mechanical potential energy
- **Trackmania :** Designed a remote-controlled car that could overcome obstacles and complete a given track in smallest possible time
- **Line Follower :** Designed an autonomous line follower robot using op-amps

Relevant Courses Undertaken

Finite Element Analysis, Solid Mechanics, Strength of Materials, Material Science, Manufacturing Processes, Fluid Mechanics, Heat Transfer, Thermodynamics

Technical Skills

- Programming Language: C, C++
- Software Packages: Solidworks, ANSYS, MATLAB, Hyperworks

Academic Projects

- **Design Exploration Workshop**
Guide: Prof. C. Amarnath, Mechanical Engineering Department, IIT Bombay
 - The workshop addressed the process of approaching a problem and coming up with innovative design solutions in limited time
 - Came up with low-cost, bio-inspired solution for a wall-climbing machine and fabricated it within a limited period of two days
- **C++ Project: Solving Linear Programming Problems**
Guide: Prof. R.K. Joshi, Computer Science and Engineering Department, IIT Bombay
Developed a program that can solve linear programming problem to give optimum solution(s) for a given set of equations using C++

Scholastic Achievement

- Secured **All India Rank-468** among 4.75 lakh students in JEE-2010
- Secured **All India Rank-85** and **State Rank-5** among 11 lakh students in AIEEE-2010
- Awarded **High Distinction Certificate of Merit** in Australian National Chemistry Quiz 2007 conducted by Royal Australian Chemical Institute

Positions of Responsibility

- **Avanti Fellows (March'11-May'12)**
Part of a budding student-run social enterprise which mentors bright and motivated students from low-income backgrounds to succeed in competitive university entrance exams
- **Teach Me (2010-2012)**
Interactive sessions with children in a slum near campus every Sunday with an aim of overall personality development
- **Organizer** in Events department, **Techfest-2010**, to design and organize new events
- **Organizer** for Vogue, one of the most popular events of IITB'S cultural festival, **Mood Indigo-2010**, under **Horizons** department

Extra-curricular Activities

- Member of Volleyball inter-IIT camp- Dec'11
- **Awarded** the hostel **PAF Special Mention** in fine arts for Performing Arts Festival 2011
- Part of the record made by IIT Bombay for most people solving the **Rubik's Cube** at a time which is registered in the **Guinness World Records** and **Limca Book of Records**
- Trained in **Hindustani classical music** for two years