

- Pursuing minor in **Computer Science and Engineering**

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 34** in JEE (Advanced) '14 out of **150,000** candidates
- Secured **99.99 percentile** in Mains B.Tech '14 out of **1.3 million** candidates
- Secured **All India Rank 46** in Mains B.Arch '14 out of **half a million** candidates
- Shortlisted for the prestigious **KVPY '12** mentorship program at Indian Institute of Science, Bangalore
- Secured **30th position** in South Indian Mathematics Olympiad '10 conducted by **SIMO** Education
- Secured **All India Rank 117** in Unified Cyber Olympiad '10 round-2 conducted by **Unified Council**
- Secured a **percentile score of 98.62** in National Science Olympiad '11 conducted by **SOF**

PROJECTS

Data Acquisition and CAN protocol Subdivision, IIT Bombay Racing Team (Aug '15 - Present)

Guide: Prof. Ramesh Singh, Mechanical Engineering Department, IIT Bombay

IITB-Racing is a team of 70 students which designs and fabricates an electric race car for the Formula Student UK

- Responsible for designing and fabricating **Data Acquisition System circuit** to analyze the motor controller data and the data from all the sensors mounted on the vehicle
- Assembled an LCD unit(Dashboard) to provide real time data received from the **CAN bus** to the driver
- Established a wireless communication using **XBEE wireless transmitter(868MHz)** between vehicle and laptop
- Real time status of the vehicle is shown on a **GUI** from the data received through telemetry

Isolated Digit Recognition

(May '16 - Jul '16)

Guide: Prof. Preeti Rao, Electrical Engineering Department, IIT Bombay

Recognition of spoken digits(Zero to Nine) through Machine Learning

- Imitated human auditory response in closest way possible using **Mel Frequency Cepstrum**
- Developed an efficient algorithm to separate utterances from the noisy signal in **Scilab**
- Implemented **k-means** clustering algorithm and trained the machine with the cluster centers
- Achieved **85%** accuracy in detection of the digits through matching the feature vectors

Reliability and Performance of Trap based 3D NAND flash memories

(Jul '16 - Present)

Guide: Prof. Souvik Mahapatra, Electrical Engineering Department, IIT Bombay

Improving **Charge Trap Flash** memories to make them an ideal replacement for Floating Gate Flash memories

- Simulating various parameters like electric fields, potentials of CTF memory cell using C++
- Studying effect of **Silicon Nitride** composition on retention and Program-Erase cycle characteristics
- Identifying of plausible physical mechanisms and other reasons influencing retention charge loss
- Studying the effect of Silicon to Nitride ratio in Silicon Nitride layer on electron and hole trap properties

Mobile-Arduino Flashlight communication

(Nov '15 - Feb '16)

Guide: Prof. Kumar Appaiah, Electrical Engineering Department, IIT Bombay

Packetised communication between Arduino and mobile achieved through flashlight and a pair of IR LEDs

- Built an **android app** which takes string input and encodes into bit strings for which flashlight blinks
- Decoding of flashlight is done by a pair of **IR LEDs** whose differential voltage is fed to Arduino
- Achieved a maximum transfer rate of **40 bits per second** despite all non-idealities

Projector Keyboard

(May '15 - Jun '15)

Institute Technical Summer Projects, IIT Bombay

Prototype of projector keyboard made under **INR 2000** using 2 web cameras and OpenCV

- Developed the algorithm for **touch detection** using suitable filters of skin colour
- Developed an effective algorithm for locating the point touched
- Selected for **Tech and RnD Expo**, annual science exhibition at IIT Bombay

Brick Breakers

(Mar '15 - May '15)

Course Project, Course: Computer Programming and Utilisation, IIT Bombay

- Built the popular brick-breakers game using **OpenGL** in integration with **SDL** in C++
- Developed an effective algorithm for logic part which includes collision detection, bricks of variable strength
- Devised an algorithm for graphics part which includes building of arena and loading of images

POSITIONS OF RESPONSIBILITY

Class Representative

(Aug '15 - May '16)

B.Tech, Department of Electrical engineering, IIT Bombay

- Responsible for conveying the opinions of students effectively to professors and department council members
- Organized extra tutorials and help sessions for tough courses
- Initiated the semester-end photoshoot for the batch of electrical engineering sophomores
- Organized the department traditional day event which had the largest turnout ever

Coordinator, Team-Web

(May '15 - Dec '15)

Entrepreneurship Cell, IIT Bombay

- Maintained the home page of Entrepreneurship Cell, IIT Bombay
- Responsible for maintaining the **National Entrepreneurship Challenge** Web page
- Created user friendly task portals using HTML, CSS

KEY COURSES UNDERTAKEN

Electrical Engineering

Microprocessors*, Communication Systems*, Electromagnetic Waves*, Probability and Random Processes*, Analog Circuits, Digital Systems, Signals and System, Electrical Machines and Power Electronics, Electronic Devices and Circuits, Network theory, Advanced Network Analysis

Computer Science and Engineering

Computer Graphics*, Data Structures and Algorithms, Computer Programming and Utilisation, Computer Networks

Other courses

Calculus, Complex Analysis, Linear Algebra, Differential Equations, Quantum Physics and application, Electricity and Magnetism, Psychology*, Economics, Physical Chemistry, Organic and Inorganic Chemistry, Biology

* Courses to be completed by Nov' 16

TECHNICAL SKILLS

Programming

C/C++, VHDL, Python, HTML, CSS

Software

Scilab, MATLAB, OpenCV, OpenGL-SDL, Quartus, AutoCAD, NGSPICE

EXTRA CURRICULARS

- Participated in wireless **RF module** car building competition XLR8, IIT Bombay (Aug '14)
- Represented hostel 8 in **Logic General Championship**, IIT Bombay (Oct '15)
- Member of hostel sports contingents who participated in inter-hostel sports, IIT Bombay (Aug '15 - Feb '16)
- Completed a 2 month course on **Athletics** from Summer School of Sports, IIT Bombay (May '15 - Jul '15)
- Completed a 1 year course on badminton from **National Sports Organization**, IIT Bombay (Jul '14 - Apr '15)

OTHER INTERESTS

- Coding and Technical activities
- Guitar, Photography, Sketching, Dance