Pranav Rao | **160100021**
Computer Science & Engineering | **UG Second Year**
India Institute of Technology, Bombay | **Male**
Specialization: None | **DOB: 05-10-1998**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2020	9.83
Intermediate/+2	CBSE	VG Vaze College	2016	93.4
Matriculation	Matriculation	VPM's BR TOL High School	2014	10.00

Pursuing **Minors** in Mathematics and **Honors** in Computer Science and Engineering

Scholastic Achievements

- Secured an **All India Rank of 26** in **JEE Advanced 2016** among 150 thousand candidates
- Bagged **All India Rank 35** in **JEE Main 2016** among 1.5 million candidates
- Secured Department rank of 9 in Computer Science department among 120 students
- Among the top 300 students in India to qualify for **INChO** in 2015-16 and in **INMO** in 2014-2015
- Received merit certificates for being amongst the top **one percent** students in each of the Indian National Olympiads of Physics and Chemistry in the year 2015-16
- Awarded the prestigious **KVPY Fellowship** by Government of India with All India Rank 118
- Recipient of the **National Talent Search Examination** (NTSE) Scholarship awarded by Government of India

Major Projects

MATSYA *Oct '16 - Present*
Autonomous Underwater Vehicle (AUV) project *IIT Bombay*

- Chief engineer in software sub-division of the AUV-IITB team
- Worked on **signal processing algorithms** in **C++** for collecting acoustic data from hydrophones and processing the data to localize on the pinger emitting the sound pulse
- Contributed to PID controller, written in **C++** and Navigator and State packages, written in **Python**
- Currently working on an algorithm to localize AUV with inputs from multiple sensors using **Kalman filter**

Interactive Academics *Sept '17 - Present*
Course project under prof. Kavi Arya, CSE Dept *IIT Bombay*

- Designed a Question/Answer forum, particularly for the courses at universities
- Implemented **PHP framework** facilitating students in asking their queries to faculties and other peers
- Working on Relational Database Management System to store data of question threads using MySQL
- Working on **NLP algorithms** for grouping similar questions using tags and searching questions asked by peers
- Building a chatbox for direct communication and calendar for event scheduling

Other Projects

Ballerina *Jun '17-July '17*
Institute Technical Summer Project, STAB *IIT Bombay*

- Designed a self-balancing 2-D plate using **inverted pendulum mechanism**,inspired from Cubli
- Integrated an **IMU** for measuring deviation angle and implemented PID controller for the movement of inertia wheel
- Implemented **I2C communication protocol** for the communication of MPU with Arduino
- Tuned the controller parameters so that the recovery angle of the square was about 6 degrees

Remote controlled and autonomous bots *Jul '16 - Mar '17*
Technical competitions held by STAB, IITB *IIT Bombay*

- Designed and constructed robotic car for XLR8 (racing competition) using **ATTINY2313A** for functioning of bot and **L293D motor driver** for control
- Developed and piloted **RF controlled plane** propelled by brush-less DC motor
- Designed an autonomous line and wall follower car using Arduino and infrared LED sensors

Technical Skills

Programming	C++, Java, Bash, Python, Android Studio
Web Development	HTML, CSS, Bootstrap, Javascript, PHP, SQL
Software	GNU Octave, MATLAB, Gnuplot, Git, LaTeX, AutoCAD, Arduino

Positions of Responsibility

Teaching Assistant *July '17-Present*
MA 105 - First year UG calculus course

- Mentoring 49 first year students under Prof. Ravi Raghunathan (Maths Department IIT Bombay)
- Responsible for **teaching** and **evaluating** them, providing feedback to the Instructor-in-charge

Volunteer at NGO *Jul '16 - Mar '17*
NSS IIT Bombay activity during the first year

- Taught students from 3rd to 10th grade at **two NGOs** Asha and LCCWA, as a part of National Service Scheme
- Awarded with a certificate for completing **80 hrs of social work** from IIT Bombay

Organizer *Dec '16 - Jan '17*
Techfest and Tech R & D expo at IIT Bombay

- Coordinated and helped in arranging technical exhibitions during Techfest
- Responsible for organizing Tech exposition and explaining the audience about the technical displays

Courses Undertaken

Computer Science	Data Structures and Algorithms*, Abstractions and Paradigms**, Software Systems Lab*, Digital Logic Design**, Discrete Structures*, Design and Analysis of Algorithm**, Circuits*, Logic for Computer Science**, Computer Networks**, Machine Learning(Stanford, Coursera, Introduction to programming through C++
Maths	Basic Algebra(Groups, rings and fields)*, Calculus, Data Analysis and Interpretation, Linear Algebra, Differential Equations
Others	Quantum Physics and application, Introduction to Electrical and Electronics,Basics of Electricity and Magnetism, Economics**

* to be completed by November 2017
** to be completed by April 2018

Extracurricular

- Completed a reading project on the topic **Introduction to Topology** as an activity of Summer of Science, event of Maths and Physics Club, IIT Bombay *May '17 - July '17*
- Successfully attended the **Vijyoshi Camp-2015** held for the KVPY fellow students at IISc Bangalore, aimed at providing exposure to students in the field of Research and Science *Dec 2015*
- Attended a four day camp at Homi Bhabha Centre for Science Education (HBCSE), held for training the students selected for Indian Maths Olympiad(INMO) *Dec 2014*
- Bagged **11th Olympiad rank** in advanced level French Language Olympiad and **9th Olympiad rank** in intermediate level French Olympiad *2012-2014*
- Awarded with MTSE(Maharashtra talent search examination) scholarship consecutively for 2012, 2013 and 2014