



Harsh Saiprasad Deshpande
Electrical Engineering
Indian Institute of Technology Bombay
Specialization: Microelectronics

16D070011
UG Third Year (Dual Degree)
Male
DOB: 05/09/1998

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2019	0.00

SCHOLASTIC ACHIEVEMENTS

- Pursuing a **Minor in Computer Science** from with a minor CPI of 10.00 (2017)
- Awarded **AP** grade for excellent performance in **Electronic Devices Lab** (rank 1 out of 139 students) (2017)
- Secured **All India Rank 474** in **IIT JEE-Advanced Examination** among 150,000 candidates (2016)
- Bagged **All India Rank 458** in **JEE Mains** among 1.3 million candidates (2016)
- Bestowed with the prestigious **KVPY Fellowship** by DST, Govt. of India with **All India Rank 106** (2016)
- Receptient of **National Talent Search Examination(NTSE)** Fellowship by NCERT, Govt of India (2014)

INTERNSHIPS AND KEY PROJECTS

Parametric Time Dependent Entropy of EEG | Summer Internship (Summer 2018)
Prof. Anastasios Bezerianos | Cognitive Engineering, SINAPSE National University of Singapore

- Developed and implemented algorithms in Python to calculate and analyze four distinct **Parametric Time-Dependent Entropies (TDE)** of an EEG (Electroencephalogram) signal
- Designed an algorithm using Time-Dependent Entropy to perform **real-time mental fatigue monitoring**
- Applied **Support Vector Machine(SVM)** to classify **Cognitive Fatigue** and **Mental Workload** achieving **75%** and **82%** classification accuracy respectively
- Developed a **Graphical User Interface** in Qt framework for projection of the aforementioned results

IITB Mars Rover Project (October 2017 - Present)
(The team represented India at the international finals of URC-2018 and bagged 31st position out of 95 teams)

- Responsible for integration of an Battery Management System with **Active Cell Balancing**
- Conceptualised onboard sensor fusing of GPS and IMU via **Kalman Filter** for robust localisation of the rover
- Obtained hands-on experience on implementation of **IK code for robotic arm control**, a **BMS enabled battery** and codes to operate DC motors via **H-bridge motor driver**

Semiconductor Device Parameter Extraction (November 2017- Present)
Prof. M. B. Patil | Electrical Engineering Department IIT Bombay

- Conducted a literary survey of variation in values of parameters of the **SPICE model** of a bipolar junction-transistor **BC547** affect its device charecteristics and how they can be tweaked to obtain desirable features
- Developed an iterative method based on **Particle Swarm Optimization** to **determine parameters of the transistor** from device charecteristics accurately and in a **short convergence time**

Autonomous Bipedal Robot with Object Tracking (Summer 2017)
Institute Technical Summer Project Students Technical Activities Body, IIT Bombay

- Designed a **Bipedal robot** to mimic the **human walk** and capable of recognizing & following objects
- Implemented Control Protocol using **RaspberryPi 3** and designed an algorithm to recognise spherical objects
- Incorporated servo motors to provide the bot with **two degrees of freedom** to mimic the human walk
- Used RaspberryPi camera along with **OpenCV 3.2** library to process video input and track the object

POSITIONS OF RESPONSIBILITY

Hostel Web and Computer Secretary (August 2017 - May 2018)
Hostel 5 IIT Bombay

- Administered and updated the Hostel Website with respect to hostel events, activities, festivals and mess
- Responsible for maintaining and updating hostel computer systems and networks

EXTRACURRICULARS

- Volunteered for the Green Campus initiative of National Service Scheme(NSS),IIT Bombay (2016)
- Bagged 2nd place at Vigyasa, an Inter-College general knowledge quiz (2015)
- Awarded Silver Medal in IKEN Scientifica Robotics Olympiad (2010)
- Maharashtra State Champion in Abacus Mental Arithmetic Exam oraganised by UCMAS (2008)