Harsh Saiprasad Deshpande | **16D070011**
Electrical Engineering | **UG Third Year (Dual Degree)**
Indian Institute of Technology Bombay | **Male**
Specialization: Microelectronics | **DOB: 05/09/1998**

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

Scholastic Achievements

- Ranked **3rd** in Electrical Engineering Dual Degree Department amongst a total of 69 students *(2018)*
- 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)*
- Recepient of **National Talent Search Examination(NTSE)** Fellowship by NCERT, Govt of India *(2014)*

Internships and Key Projects

Parametric Time Dependent Entropy of EEG | SINAPSE, NUS *(Summer 2018)*

- Developed algorithms in python to calculate four **Parametric Time Dependent Entropies** of EEG Signals
- 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

IITB Mars Rover Project *(October 2017 - Present)*

- 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)*

- 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**

Touchless Gesture Recognition | Course Project *(March 2018 - May 2018)*

- Bestowed with **Best Project Award** among 70+ projects
- Designed and implemented a Touch-less gesture Audio **volume controller**, **Motion tracker** (using an LED matrix) and a Gesture **pattern lock** using **Infrared Emitters and Sensors**

Autonomous Bipedal Robot| Technical Summer Project *(Summer 2017)*

- 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

Technical Skills

Programming	C++, C, Python, Java, Arduino, VHDL
Software packages	MATLAB, Gnuplot, Git, AutoCAD, SolidWorks, Ngspice, LaTeX

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)*
- Cleared Elementary Drawing Examination organised by the Government of Maharashtra *(2010)*
- Maharashtra State Champion in Abacus Mental Arithmetic Exam oraganised by UCMAS *(2008)*