



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

- 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)
- Receptient 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)

- Implemented **Inverse Kinematics algorithm** for closed-loop control of the 6 DoF robotic arm, with **visual pose estimation** on RViz via URDF model using encoder feedbacks to aid remote operation
- Conceptualised onboard sensor fusing of GPS and IMU via **Kalman Filter** for robust localisation of the rover

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, L ^A T _E X

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)