

Pursuing a **minor degree** in **Computer Science and Engineering**

ACADEMIC AND SCHOLASTIC ACHIEVEMENTS

- Awarded **Institute Technical Special Mention** for exemplary contribution to technical sphere of IIT-B[’18]
- Secured All India Rank **903** in **IIT JEE-Advanced** out of 1.5 million aspirants [’16]
- Achieved All India Rank **469** in **JEE-Mains paper-1** out of 1.2 million candidates [’16]
- Achieved All India Rank **129** in **JEE-Main paper-2** (BArch) out of 1 million candidates [’16]
- Attained State Rank **56** in **EAMCET-AP**, among 0.3 million students [’16]
- Recipient of the prestigious Kishore Vigyanik Protsahan Yojana (**KVPY**) Fellowship in basic sciences [’15]
- Awarded National Talent Search Examination Fellowship (**NTSE**) by NCERT, Govt. of India [’14]

TECHNICAL AND ACADEMIC PROJECTS

MAHINDRA RISE DRIVERLESS CAR CHALLENGE |Innovation Cell IIT Bombay [Nov’17-Present]
*Part of a team of 20 members aiming to build **SeDriCa; India’s 1st driverless car***

- One of the **11 finalists** out of **259** teams (IV Level); Received a **Mahindra E2O** for further development
- Formulated a novel method for **Inverse Perspective Mapping** which is being used to get the bird’s eye view
- Modified the existing **Linknet(CNN)** architecture for **road and lane detection**
- Implemented **Multinet** for **road detection** & **YOLO(CNN)** for **traffic light,sign & Speed-bump detection**
- Accomplished the **classification of Indian traffic signs** using **RESNET-152** architecture with a train accuracy of **98%** and validation accuracy of **95%**
- Developed an **algorithm** for real time **zebra crossing** detection in OpenCV C++
- Currently developing **Convolutional Neural Networks** for **scene parsing** on **tensorflow**

STUDENT DESIGN CHALLENGE |American Society of Mechanical Engineering [Nov’16-Nov’17]
***Overall first in World finals** out of 8 teams from 4 countries held at Tampa, Florida|won 4000\$ as prize money*

- Coordinated in a **team of 10** to build a bot capable of performing **5 distinct tasks** for competition
- Designed a **Ball Screw** subsystem in SolidWorks and simulated it’s stress analysis in **ANSYS**
- Responsible for the entire **electrical and electronic** subsystem of the bot
- Designed the circuit boards required in **EAGLE** Circuit simulator & modeled the wire routing in Solidworks
- Programmed **Arduino** and **Roboteq** microcontrollers used for the control of all the subsystems
- Felicitated by **honourable Director** Devang Khakhar of IIT Bombay

AUDIO ENCRYPTION AND DECRYPTION |Course Project [Mar’18-Apr’18]
Guide: Prof. Siddharth Tallur |Analog Lab

- Designed two **III order Chaotic Oscillators** for encryption and decryption
- The audio signal from the **microphone** is **encrypted** using a **white noise** created by the Chaotic Oscillator at transmitter and the encrypted signal is transmitted
- The encrypted signal is **decrypted** at the receiver end using another Chaotic Oscillator and a **Coupler**
- Simulated the entire system in **NGSPICE** and implemented it using **TL072 Op-amps**

REACTION GAME |Course Project [’18]
Guide: Prof. Madhav Desai |Digital Circuits Lab

- Developed a game which gives a quantitative measure of the player’s **reaction response** to a blink in LED.
- Designed a **Finite State Machine** algorithm for the game in **VHDL**
- Simulated the **RTL** and **Gate Level** timing analysis of the program in Quartus Software
- Implemented the program on a **CPLD** based KRYPTON board and interfaced a **32-bit LCD** display with the same for viewing the output

INTERNATIONAL ROBOTICS CHALLENGE

[Oct' 17- Dec' 17]

Project Leader

- Lead a team of **7 members** to build an **autonomous** and a **manual** bot which are capable of coordinating and transferring blocks from one point to another
- Implemented the **D* path planning algorithm** in the autonomous bot
- Mentored the team members and made them implement the real time **obstacle** detection on a **Raspberry Pi**

AUTONOMOUS QUADCOPTER |Innovation Cell IIT Bombay

[May' 17- jul' 17]

Technical Summer Project

- Built an autonomous quad-copter using a microcontroller, **camera**, proximity sensors and a **GPS** Module
- Studied the **dynamics of Quadrotors** and estimated the parameters required for the project
- Implemented **detection** and **tracking** of obstacles in Open CV C++ and integrated it with **ROS**

ROBOWARS |Techfest

[Nov' 16- Dec' 16]

Remote controlled robot capable of fighting a one on one tournament

- Represented the institute along with 7 fellow members having a total participation of more than 30 teams
- **Designed** the mechanical model which consists of Pneumatic System for **4 bar linkage flipping** mechanism

TECHNICAL ACTIVITIES

TALKS and SESSIONS

- Invited by **JPMorgan Chase & Co** to give **Millennovation TED talk** on Autonomous Technology
- Delivered talk to **2000+** audience including Head of JPMC, India while representing IITB [18]
- Conducted a classroom session on **Introducion to Machine Learning** attended by 100+ students [18]

MENTORSHIP

- Mentored **two teams** for their Institute Technical Summer Project organised by ERC Club IIT Bombay [18]
- Selected to **mentor over 300 freshmen** in XLR8 - a bluetooth operated robot building competition [17]

WORKSHOPS

- Attended the **Vijyoshi Science Camp** organised at Indian Institute of Science, Bangalore [15]
- Participated in **Hack U**, a hackathon conducted by **Yahoo!** Japan and implemented **biological simulation** of two opposing species using C++ at IIT Bombay [17]
- Participated in **ARM** and **Wireless Networking** workshop organised by Electronics club IIT Bombay [16]

TECHNICAL SKILLS

Programming Languages/Libraries	C, C++, Python, VHDL, MATLAB, OpenCV
Softwares and Tools	Arduino, SolidWorks, ANSYS, EAGLE, NGSPICE, QUARTUS, ROS
Machine Learning Libraries	Tensorflow, keras, Scikit-Learn

POSITION OF RESPONSIBILITY

MANAGER, Innovation Cell - IIT Bombay

[18]

*Innovation Cell aims to facilitate **technical start-ups** and foster an atmosphere of **innovation** and **entrepreneurship***

- Member of the team in charge of **planning, organizing** and publicizing events under the Innovation Cell
- Spearheaded a **7-member team** to build 2 bots which are capable of interacting with each other
- Optimized the process of prototyping by using **rapid product development**
- Showcased SeDriCa at TechConnect'17, organised by Techfest IIT Bombay with a footfall of over 1,69,000
- Presented various projects of Innovation Cell in the **Tech and R&D Expo'17** conducted at IIT Bombay
- Interviewed and recruited 14 freshmen from a pool of 250+ UG and PG applicants for Innovation Cell

COURSES UNDERTAKEN

Core Courses	Electronic Devices, Network Theory, Analog Circuits, Signals and Systems, Digital Systems, Power Electronics, Micro Processors*, EM Waves*, Communication Systems*
Computer Science	Computer Programming and Utilization, Data Structure and Algorithms, Machine Learning*, Deep Learning*
Mathematics	Numerical Analysis, Calculus, Linear Algebra, Differential Equations, Data Analysis and Interpretation, Complex Analysis, Probability and Random Processes*

**to be completed by November 2018*

EXTRACURRICULARS

- Successfully completed Summer School of Sports in Football held in summer IIT Bombay [May17-Jun'17]
- Volunteered for Green Campus, National Social Service scheme, IIT Bombay [Aug16-Apr17]
- Pre-finalist in Spell-bee conducted by Sakshi india [13]
- Stood first in the district of East Godavari, AP in Quiz Competition and second in Map Pointing test [13]