

Pursuing a **Minor Degree in Computer Science and Engineering** Department with minor degree CPI of **9.5**

## SCHOLASTIC ACHIEVEMENTS

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- Awarded **AP Grade** for outstanding performance in the course on **Network Theory** 2017
- Secured **All India Rank 368** out of 1.5 lakh candidates in **JEE Advanced** 2016
- Recipient of prestigious **Kishore Vaigyanik Protsahan Yojana(KVPY)** Scholarship 2015
- Awarded certificate of merit for statewide **top 1%** in **National Standard Examination in Physics** 2015
- Qualified for **Indian National Chemistry Olympiad (INChO)** based on performance in NSEC 2015

## INTERNSHIPS

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### OkCredit, Bangalore

May'18-Jul'18

*OkCredit is a mobile based digital ledger for small businesses in India that extend credit to their customers*

- Designed infrastructure to collect user interactions from the mobile app for targeted communication with them
  - Built a server in **Google Go** to store data in a **Cassandra** database and transfer it to **Amazon S3** daily
  - Created an **Android Library** to store the user data locally and send it to the server
- Developed user authentication service in Google Go based on **Oauth 2.0** for mobile and web applications
- Devised and performed **unit, load tests** of REST APIs to calculate their maximum load as function of resources

## KEY PROJECTS

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### Electrical Subsystem, Advitiy

Feb'17-Present

*Advitiy is the 2nd student satellite of IITB, technically advanced and efficient version of the 1st, Pratham*

- Critically analyzed various parameters and constraints to **finalize the microcontroller** of On Board Computer
- Proposed the use of **Real Time Operating System (RTOS)** to carry out the scheduling of tasks being run on the On Board Computer and conceptualized a **scheduling algorithm** for the same
- Performed **functionality test** on flight hardware of Pratham to get familiar with source code and its peripherals
- Interfaced **Magnetometer** with On Board Computer using **UART** Communication Protocol

### Encrypted Audio Transmission using Chaotic Circuits

Apr'18

*Guide: Prof. Siddharth Tallur, Electrical Engineering*

*Course Project*

- Designed and implemented a third order **chaotic oscillator** for encryption and decryption of audio signals
- Encrypted audio signal using **white noise** created by the chaotic transmitting oscillator
- Coupled receiver with transmitter circuit to produce the same **unique chaotic noise** in order to recover the signal
- Simulated the system in **NGSpice** and verified the results by implementing the system on PCB

### Lazy Lock: Automatic Lock

May'17-Jan'17

*Institute Technical Summer Project*

*Institute Technical Council*

- Designed and implemented an automated door unlocking mechanism which unlocks by **gesture detection, knock pattern** and remotely from an **android app** along with a Do not Disturb (DND) option
- Implemented **Image Processing** algorithms using **OpenCV** on **RaspberryPi (RPi)** for gesture recognition
- Improved gesture recognition accuracy by employing **Machine Learning** using **scikit-learn** in python
- Integrated RPi with **knock detector circuit** such that it unlocks only on a unique knock pattern

### Technologies for Soldier Support

Dec'17-Jan'18

*Part of an 8 member team that represented IIT Bombay in the Inter IIT Technical Meet held at IIT Madras*

- Fabricated a smart glove using **flex sensors** and **accelerometer** to detect soldier's hand gestures
- Built a headband which could monitor Soldier's important physiological parameters such as Heartbeat, Temperature and Head Impact Force using **optical pulse sensor, temperature sensor** and **accelerometer**

### Reaction Game

Feb'18-Mar'18

*Guide: Prof. M.P. Desai, Electrical Engineering*

*Course Project*

- Designed an arcade game that tests the player's reflexes using a **CPLD board**
- Modelled the game as a **Finite State Mealy Machine** using the concepts of Register Transfer Level (RTL) for the operation of LEDs and push-buttons, and to display the player's score on an LED panel

### DC Motor Speed Regulator

Guide: Prof. M.B. Patil, Electrical Engineering

Mar'17

Course Project

- Varied the speed of DC motor employing **Pulse Width Modulation (PWM)** technique using digital ICs
- Designed the circuit using **Preset Counter, J-K flip flops** and various other ICs

### Multi-Client Server using Forking

Guide: Prof. Mythili Vutukuru, Computer Science Engineering

Aug'17

Course Project

- Programmed a **TCP server** in C++ which connects to various clients simultaneously
- Created a map which takes key-value pairs from clients and stores it, while also serving to any client

## POSITIONS OF RESPONSIBILITY

### Subsystem Leader, Electrical Subsystem, Advitiy

Feb'18-Present

Advitiy is the 2nd student satellite of IITB, technically advanced and efficient version of the 1st, Pratham

- Spearheaded a **10 membered** inter-disciplinary team of two subdivisions, Power and On-Board Computer to design the power distribution circuit, interface with peripherals and implement the control algorithm
- Ensured implementation of **Quality Assurance Practices** to guarantee **100%** reliability
- Recruited **9 candidates** from over **100 applicants** by conducting a three stage selection procedure which tested technical skills, practical approach and teamwork
- Contributed to **Satellite 101 wiki**, a compilation of exhaustive knowledge of satellite project which reached **5.8k** page views and **1.4k** users around the globe within a month

## TECHNICAL SKILLS

<b>Languages</b>	Google Go, SQL, VHDL, C, C++, Python, Embedded C, Java
<b>Micro-controller Programming</b>	Atmel Studio, ArduinoIDE, RPi
<b>Simulation and CAD Softwares</b>	Proteas, NGSpice, SolidWorks, AutoCAD
<b>Other Softwares and Modules</b>	Android Studio, GNURadio, Quartus, OpenCV, Scikit-Learn, Git

## KEY COURSES UNDERTAKEN

<b>Electrical Engineering</b>	Signals and Systems, Analog and Digital Systems, Communication Systems*, Power Electronics, Microprocessors*
<b>Computer Science</b>	Digital Image Processing*, Introduction to Machine Learning*, Computer Networks, Data Structures and Algorithms
<b>Mathematics and Statistics</b>	Data Analysis and Interpretation, Probability and Random Processes*

\*to be completed by November '18

## EXTRA CURRICULAR ACTIVITIES

- **Social Work**
  - Volunteered in **NGO Vidya** for tutoring financially and socially underprivileged children
  - Taught English to college kitchen staff as a part of **Adult Literacy Program (ALP)**, NSS
  - Devoted **80+ Hours** to Social Service under **National Service Scheme, IIT Bombay**
  - Helped in **organizing CURED**: a diabetes awareness campaign attempting **Guinness World Record** for maximum number of glucose level check-ups covering **200+ camps in 10 states**
- Successfully completed **Mountaineering Adventure Course (MAC)** which is affiliated to Government of India and Government of Jammu and Kashmir
- Successfully completed **Swimming Camp** conducted by sports council as a part of Summer of Sports
- Presented **Pratham, IIT Bombay Student Satellite** in a national exhibition before an audience of over 400