



Siddharth Khandelwal
Electrical Engineering
Indian Institute of Technology Bombay

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B.Tech.
Gender: Male
DOB: 12/17/2001

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2023	
Intermediate	CBSE	Jayshree Periwal High School	2019	95.80%
Matriculation	ICSE	Hiranandani Foundation School	2017	97.00%

Pursuing minor in **Computer Science & Engineering**

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 206** in **JEE Advanced** out of **180 thousand** candidates [2019]
- Achieved **All India Rank 463** in **JEE Mains** out of **1 million** students [2019]
- Received the **KVPY** Fellowship award, awarded to **1500** students out of **1 lac** students [2018]
- Secured an **AIR 22** out of 50,000 teams in **Technothon** conducted by **IIT Guwahati** [2017]

PUBLICATIONS AND PRESENTATIONS

- Gupta Y., Khandelwal S. et al. "Lunar Exploration through Chipsats", IAC 2020 congress proceedings, 71st International Astronautical Congress - IAC Cyberspace Edition, 12-14 October 2020
- 'Lunar Exploration through ChipSats: Seismology Payload', Virtual Research Symposium by Students 2021, IIT Bombay; Awarded the **best presentation** in the Geo-technology vertical

PROFESSIONAL EXPERIENCE

Space x View Pte. Ltd, Singapore

[Jun 2021 - Jul 2021]

Research & Development Internship

- Worked with a team of 5 co-interns to create the first prototype of a **controllable buoy** capable of **oceanic data** collection and transmitting it to a ground station to build real-time models
- Interfaced the temperature and TDS sensor with the microcontroller on the buoy
- Integrated all the sensors, motors, transceivers, and solar panels on the **final prototype**

TECHNICAL PROJECTS

Medical Image Computing

[May 2021]

Prof. Suyash Awate | Computer Science & Engineering Department

Course Project

- Developed a model to identify metastatic tissue in histopathologic scans of lymph node sections and achieved an accuracy of **94%** and **AUC-ROC** score of **0.97** on the validation set.
- Implemented **VGG** and other custom **Convolution Neural Networks** using Keras and Tensorflow
- Implemented image **denoising**, **segmentation**, and **statistical shape analysis** algorithms to execute programming assignments based on concepts and techniques discussed in the course

IIT Bombay Student Satellite Program

[Feb 2020 - Mar 2021]

A 70-member student team dedicated to the vision of making IIT Bombay a center of excellence in Space Technology

Great Lunar Expedition for Everyone

GLEE is a global collaborative mission that will conduct science on the lunar surface with Chipsats

- Implemented **I2C communication protocol** between a gyroscope sensor and an **Arduino UNO**
- Assessed the **magnetometer payload** for its feasibility on the lunar surface by surveying methods of calibration of magnetometers and studying the magnetic field on the Lunar surface
- Simulated a **lunar seismic model** in Python using **Devito** to detect micrometeorites on the Moon

RL Agent for Atari Breakout

[May 2021]

Introduction to Machine Learning | Prof. Abir De

Course Project

- Implemented the **Deep Q-Learning** and **Double Deep Q-Learning** algorithms in **Reinforcement Learning** to train an agent to solve the **Cartpole** problem and play the **Atari Breakout** game

Mobile Deck

[Jun 2020]

Institute Technical Summer Project

- Developed an app on **Android Studio** which can be used as a **wireless trackpad**
- Used the **Bluecove** Java library to develop a computer interface for the functioning of the app

Spanning Tree Protocol and Learning Bridges

[Nov 2020]

Computer Networks | Prof. Varsha Apte

Course Project

- Designed a program that can model any **network topology** with LAN and **learning bridges**
- Programmed and implemented **spanning tree protocol** for the given LAN and bridge topology
- Simulated the functioning of learning bridges for any sequences of data transfers in the network

16-bit ALU

[Dec 2020]

Digital Systems | Prof. Virendra Singh

Course Project

- Designed an Arithmetic-Logic Unit using **VHDL**, capable of various bit operations on 16 bit numbers
- Engineered a **Parallel Prefix Adder** by implementing the **Kogge Stone Architecture**

Tapcode Tone Generator

[Apr 2021]

Microprocessors Lab | Prof. S. Vijayakumaran & V. Rajbabu

Course Project

- Programmed the **8051 micro-controller** using **Embedded C** language to generate Tap Code Tones
- Utilized a **UART** module for retrieving the keys pressed and displayed messages on a **16x2 LCD**

Digital Logic Design in VHDL

[Feb 2021-Apr 2021]

Digital Circuits Lab | Prof. Maryam Baghini

Course Project

- Utilized **behavioural modelling** to design an **FSM** that plays a musical tune via a **CPLD** board
- Optimized combinational circuits and programmed their architecture using **structural VHDL**
- Verified designs by performing simulations on all possible inputs using scan chains on **TIVA-C** board

DC Power Supply

[Oct 2019]

Introduction to Electrical Engineering Practice | Prof. B.G Fernandes, Prof. Joseph John

Course Project

- Designed and soldered a circuit of a **Full Wave Bridge Rectifier** along with a capacitive filter
- Implemented **Zener Diodes** as voltage regulators to get a +12V and -12V DC wave
- Utilized Voltage Regulators like **IC 7805** to get a +5V and -5V regulated output

TECHNICAL SKILLS

Programming	Python, C++, Julia, Java, MySQL, VHDL, MATLAB, Embedded C
Libraries	Keras, Tensorflow, Pandas, Matplotlib, Numpy
Software	Arduino IDE, Flutter, Android Studio, Git, L ^A T _E X, AutoCAD

KEY COURSES UNDERTAKEN

Electrical Engineering	Control Systems, Microprocessors [#] , Signal Processing, Digital Systems [#] , Probability and Random Processes
Computer Science	Medical Image Computing, Introduction to Machine Learning, Computer Networks,
Other Courses	Linear Algebra, Complex Analysis, Economics

[#]includes corresponding lab course

EXTRACURRICULARS

- Built a **bluetooth controlled bot** driven by the **ATtiny** micro-controller and **L239D** motor driver in XLR8, a competition organized by the Electronics and Robotics Club, IIT Bombay [Aug 2019]
- Volunteered for National Service Scheme, under the Educational Outreach program for 80+ hrs
- Taught basic Maths, English and Science to students of 9th and 10th grade [2020]
- Awarded the best actor in an Inter-School Dramatics Competition [2016]