Siddharth Chandak
Electrical Engineering
Indian Institute of Technology Bombay

17D070019
UG Third Year (B.Tech.)
Male
DOB: 12-03-1999

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2020	9.83
Intermediate/+2	CBSE	Bhavan's B.P. Vidya Mandir, Nagpur	2017	94.60
Matriculation	CBSE	Bhavan's B.P. Vidya Mandir, Nagpur	2015	10.00

Academic Achievements

- **Department Rank 1** in Electrical Engineering at IIT Bombay.
- Awarded **Institute Academic Prize** for the year 2017-18
- Among the **top 50** candidates in the **Indian National Olympiads in Chemistry and Physics** who were selected for respective **Selection Camps** for International Olympiads in 2017
- **All India Rank 346** in JEE Advanced 2017 among 0.22 million students
- **All India Rank 73** in JEE Main 2017 among 1.18 million students
- Recipient of **KVPY Fellowship** by the Government of India with an **All India Rank 86** in 2016
- Received Certificate of Merit (Awarded to **top 75** candidates) in **Indian National Maths Olympiad** in 2015
- Received the **NTSE Scholarship** for securing rank in top 1000 in 2015

Research Projects

- **Social Network Inference from Survey data** May 2019 - July 2019
  Guide - Prof. Nick Jones, Mathematics, Imperial College of London
  Investigated the difference in social networks in UK, ICL and "Hackspace" - a smaller technical community at ICL by analysing surveys comprising of questions about friendships with respect to gender, age, etc.
  - Modeled the social network using a stochastic block model and inferred the model parameters and error bounds using Bootstrapping and Bayesian Inference
  - Analysed "Hackspace" survey to examine if innovative spaces promote friendships between communities
  - Used notions of distance between probability distributions to define a statistic for “Homophily”, the tendency to socialize within one’s own community
  - Related Homophily to people’s subjective health for different regions of the UK
- **A Survey in Pedagogy** April 2019 - present
  Guide - Prof. D. Manjunath, EE, IIT Bombay
  Conducted a department-wide survey to improve curriculum design and pedagogy process
  - Designed a questionnaire with 30 questions about plagiarism, factors affecting grades, course feedback and other course related issues
  - Conducted the survey for 40 students chosen randomly from 3 grade ranges from the EE department
  - Performing statistical analysis of survey data to investigate how students from different grade ranges approach academics

Other Projects

- **General Purpose Computing Machine** Spring 2019
  EE224 - Course Project, Guide - Prof. Virendra Singh
  Designed a 8-register, 16-bit multi-cycle processor to perform basic operations
  - Implemented 14 instructions like Add, NAND, Load, Store, Jump etc.
  - Implemented in VHDL using Quartus and simulated using ModelSim

- **Application Form Reader** May 2018 - July 2018
  Institute Technical Summer Project
  Created an autonomous system to read multiple application forms using Intelligent Character Recognition & sort them according to their content
  - Built a feeding mechanism using motors, Arduino and IR sensors to move pages one at a time and stop pages below camera
  - Detected text boxes in form with accuracy of greater than 90% using OpenCV library in Python
  - Trained a neural network for character recognition using Keras library in Python
- **Gamification of Safety training** May 2018 - July 2018
  Guide - Prof. Narendra Shiradkar, EE, IIT Bombay
  Created interactive visualizations and quiz games for safety training
  - Created a road safety game using Unity and C# with multiple scenarios depicting traffic rules
  - Used Unity to build a quiz game connected to a MySQL database using PHP
- **Digital Phase Meter** Spring 2018
  EE112 - Course Project, Guide - Prof. Subhananda Chakrabarti
  Designed a circuit to calculate and display the phase difference between two sinusoidal input waveforms of the same frequency
  - Used Timer, Comparator and Counter ICs to display angular phase difference independent of frequency

Position of Responsibility

- **Teaching Assistant** for Quantum Physics and Applications, Basics of Electricity and Magnetism, Calculus

Technical skills

- **Programming Languages:** C++, Python, LaTeX, C#, SQL
- **Hardware and Software Skills:** Unity, Arduino IDE, SolidWorks, AutoCAD, Ngspice, VHDL

Relevant Courses

- **Electrical Engineering:** Data Analysis and Interpretation, Electronic Devices, Analog Circuits, Digital Systems, Signals and Systems, Power Electronics, Probability and Random Processes*, Microprocessors*, Communication Systems*
- **Mathematics:** Calculus, Linear Algebra, Ordinary Differential Equations, Partial Differential Equations, Complex Analysis
- **Other:** Computer Programming and Utilization, Biology, Organic Chemistry, Physical Chemistry
- **Minor in Computer Science and Engineering:** Data Structure and Algorithms, Logic for CS*
- **EE Honours:** Applied Linear Algebra, Introduction to Number Theory and Cryptography, A First Course in Optimization*

* To be completed in November 2019

Extra-Curricular activity

- Adjudged 2nd among 25 groups in MHRD-TEQIP-3 Activity
  - Presented "Mathematics in Engineering" to professors and students from other universities
- Completed one year Yoga training under NSO - Yoga in 2017 - 18
- Stood 1st in Math-A-Maze 2016 conducted by Visvesvaraya National Institute of Technology, Nagpur
- Attended 10 day Vipassana Meditation Camp