

ACHIEVEMENTS

Scholastic

- Secured All India Rank **457** in **JEE advanced** (0.2 million Aspirants) 2017
- Achieved a **Percentile 99.88** in **JEE Mains** (1.2 million Aspirants) 2017
- Among **Top 20** at State level in **NSEA** (Astronomy Olympiad) and selected for **INAO** 2016

Other

- **1st** place in 10,000+ teams in **TechFest IITB's National Coding Competiton : Enigma**
- Won **Scratch Day**, coding competition organized by Web and Coding Club, IIT Bombay
- **National Winner** in **IPL Auction 2018** organized by Entrepreneurship Cell, IIT Bombay
- Placed **3rd** in annual **Jigyasa: Science Quiz 2017** organized by **University of Mumbai**
- **2 Time City Winner** in **Vodafone Derek's Faster Smarter Better Challenge '14, '15**

KEY PROJECTS UNDERTAKEN

ChordIt - Chord Sequence Extraction using Machine Learning Summer '18

Institute Technical Summer Project | Web and Coding Club, IIT Bombay

- Read literature on the use of machine learning in **Chord Sequence Extraction** problem
- Researched **Convex Optimization Methods** and selected **Stochastic Gradient Descent**
- Processed the music data to extract \mathbb{R}^{12} **Pitch Class Profile** vectors using optimized routines
- Achieved **95%** train accuracy and **86%** test accuracy on **2000** chords of different instruments
- Incorporated minibatches in SGD Optimizer for **Out-of-Core Learning** on online data

Machine Learning Models — Course Project Autumn '18

Prof. Sunita Sarawagi | Dept. of Computer Science & Engineering, IIT Bombay

- Implemented a regression tree using **Modified CART Algorithm** and tested the accuracy for different heuristic loss functions on different datasets
- Incorporated various pruning criteria to maximize the accuracy on different loss functions.
- Classified data using **Logistic, Hinge, and Perception** loss functions and **L², L⁴ Regulariser**

Effect of Reviews & Responses on Consumer Decision — Web Scraping Summer '18

Prof. Arti Kalro | Shailesh J. Mehta School of Management, IIT Bombay

- **Scraped Zomato** for a list of restaurants at different price points in Mumbai
- For each restaurants, scraped reviews, no. of likes, comments, no. of photos added, management responses using **Selenium** for **Automated Web Scraping**
- For each reviewer, extracted no. of reviews, followers, images posted, etc
- Used **Dynamic Programming** techniques to reduce runtime of web scraper

InstiApp — Open Source App Development Autumn '18

IITB Developer Community

- Part of a team of **10+ developers** in making an **Open Source Android App** for the students, professors, student bodies and visitors of IIT Bombay
- Solved many **UI/UX** as well as **Core Bugs** and also implemented new features
- Actively involved in testing, reviewing new features and reporting bugs for the app
- The app currently has **5000+ downloads** and a **4.9 ★ rating** on Google Play

OTHER PROJECTS

Competitive Coding — Reading Project

Summer '18

WnCC Seasons of Code 2018, IIT Bombay

- Studied the essential **Data Structures & Algorithms** and their underlying theory
- Researched different **Programming Paradigms** and their uses in various problems
- Practically applied all the concepts in **Competitive Coding** on various online judges
- Covered topics like Dynamic Programming, Graph Algorithms, BackTracking & more

Heart Rate Monitor — Course Project

Autumn '18

Prof. Siddharth Tallur | Department of Electrical Engineering, IIT Bombay

- Studied **Photoplethysmograms** and designed a heart rate monitor using Integrated Circuits, and **TCRT5000** IR-LED phototransistor pair which sensed the blood flow through a finger
- Analyzed the waveform on a DSO to measure systolic and diastolic heart rate.

Walking Stick for the Blind — Social Innovation

Autumn '17 - Spring 18

National Innovation Cell, National Service Scheme, IIT Bombay

- Designed and manufactured a walking stick which detects obstacles using **Ultrasonic Sensors**
- Programmed **Arduino** to simultaneously handle **3 sensors** and soldered the ancillary circuit
- Researched the market and chose **cost-effective components** to make the product affordable
- Prepared a **Questionnaire** to understand the problems and challenges faced by the blind

POSITIONS OF RESPONSIBILITY

Convener — Web and Coding Club

Apr '18 - Present

Institute Technical Council, IIT Bombay

- Responsible for conducting boot-camps, events, competitions and managing the club's resources with a long term goal of creating a thriving programming community in the institute
- Organized bootcamps on **Python/Libraries, Machine Learning, Git & GitHub**
- Ideated & Conducted a **Coding Crypt Hunt** for Freshmen via a self-made **Chatbot**
- Organized an introductory session on **Web Scraping** for Management Post-Grad Students

Coordinator, Competitions & LYP — Mood Indigo, IIT Bombay

Apr '18 - Present

- Conceptualized and organized 7 Multicity Competitions pan India thus increasing outreach
- Revamped the governing rules and regulations of 50+ competitions in various cultural genres

TECHNICAL SKILLS

- **Programming:** C/C++, Python, Java, R, MATLAB, Django, Bash, Kivy, HTML5, CSS3
- **Libraries:** PyTorch, Keras, MLpack, Tensorflow, Sklearn, OpenCV, Numpy, Scipy, Pandas
- **Software:** Git, Github, Android Studio, L^AT_EX, Adobe Photoshop, GNUplot, Jupyter

KEY COURSES UNDERTAKEN

- **Electrical:** Electronic Devices & Circuits, Introduction to Electrical Systems, Network Theory, Microelectronics, Signals & Systems**, Digital Systems**, Analog Systems**, Electrical machines & Power Electronics**
- **Mathematics and Statistics:** Calculus, Linear Algebra, Differential Equations 1 & 2, Complex Analysis, Data Interpretation & Analysis
- **Other Courses:** Quantum Physics & Applications, Physical Chemistry, Economics, Computer Programming & Utilization, Biology, Basis of Electricity & Magnetism
(* ** to be completed by May '19) (* to be completed by Nov '18)

EXTRA-CURRICULAR ACTIVITIES

- **Active Player** in Indian **Rainbow Six Siege** Community
- Mentored a team for **XLR8 2018 Robotics Competition** who then won the **2nd prize**
- Active **Quizzer** in many intra-school quiz competitions.
- Active delegate in debates and **Dynamic Speaker** at many public Speaking events in school