

MAITREYA VERMA

EDUCATION

Indian Institute of Technology, Bombay

July 2015 - May 2019

Bachelor of Technology in Mechanical Engineering with minor in Computer Science and Engineering

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 729** in JEE Advanced 2015 among 150,000 candidates
- Scored 100% marks in end semester examination of **Time Series Analysis** Course at IIT Bombay
- **Awarded a branch change** to Mechanical Engineering B.Tech, on the basis of first year academic performance at IIT Bombay (awarded to top 10 % students)
- Received a **Letter of Appreciation from the Union HRD Minister of India** (Smt. Smriti Irani) for exceptional performance in the CBSE AISSCE (All India Senior School Certificate Examination) 2015

WORK EXPERIENCE

Associate | Morgan Stanley

Aug 2019 - Present

Technology Analyst Program : 16 week intensive training on various domains in technology and finance

Financial	<ul style="list-style-type: none">• Learned about Investment Banking, Wealth Management, financial Instruments and Black Scholes model• Financial Portfolio Project : Managed a portfolio consisting of Equities and Options for a duration of 3 months
Technical	<ul style="list-style-type: none">• Bash Project: Created a bash shell using C++ with piping feature• Trading System Project : Created a trading system with microservice architecture on C# consisting of trading screen and order routing algorithm to choose best exchange for order execution

Associate : Morgan Stanley Performance Measurement (Prime Brokerage)

- Migrating legacy job which loads Greeks from risk system to MSPM system

Research Consultant | WorldQuant

July 2019 - Aug 2019

- Created quantitative models (alphas) to predict the value of securities using WebSim - web based tool for back testing alphas

KEY PROJECTS AND INTERNSHIPS

Summer Internship | Goldman Sachs

May 2018 - July 2018

Quantum Near-time Flow Designer; Part of Quantum Project containing 1M+ lines of code

- Built an interface to create and configure data pipelines used to track value of portfolio of securities
- Utilized Spring Boot Framework with Java to write the API, and ReactJS to create a graphical user interface
- Learned configuration of components of data pipeline including Bus(Kafka) and Transformer(Dozer)

Reinforcement Learning for Crypto Market | Self-Project

April 2020

Utilizing environment provided by OpenAI standards to create an agent

- Trained a Deep Q-network for performing trading on exchange providing historical data

Reinforcement Learning testbed using NIM games | Prof. Shivaram Kalyanakrishnan, IIT Bombay

Jan 2019 - May 2019

Proposed an environment for evaluating and comparing different Reinforcement Learning Algorithms

- Developed an environment for NIM games with an optimal player to play against
- Compared performance of various Reinforcement Learning Algorithms - UCB, MCTS, A2C etc.

Learning for Bi-Dimensional Auction | Prof. Manjesh Kumar Hanawal, IIT Bombay

Jan 2019 - May 2019

Researched Learning Algorithms for Bi-Dimensional Auction

- Proposed and implemented various Learning Algorithms to maximize Auctioneer's Profit in Stochastic Setting
- Theoretically proved upper regret bounds for the Algorithms proposed, and verified them with simulation results

Food Recognition and Calorie estimation | Prof. Preethi Jyothi, IIT Bombay

Mar 2018 - May 2018

Trained machine learning models to identify food images

- Applied image processing techniques to clean data obtained from FoodCam dataset
- Used SVM on local features – HOG and LBP using scikit-learn library

- Trained Convolution Neural Network on food images obtained after basic pre-processing

Parallelisation of Image Segmentation | Prof. Shivasubramanian Gopalakrishnan, IIT Bombay

Jan 2019 - May 2019

Studied scope of parallelisation in Image Segmentation Algorithms

- Implemented mean shift Algorithm to perform the task of Image Segmentation
- Developed GPU kernels for two environments - PyCUDA and Numba-CUDA, and compared their performances

Gesture controlled computing | Institute Technical Summer Project, IIT Bombay

May 2016 - Jul 2016

Developed Gesture Recognition Application using ordinary webcam on Python

- Implemented **Image Processing** techniques to detect hand and track its 'lateral' movements to record gestures
- Mapped gesture combinations to different **bash commands** for controlling laptop like volume control, music player control etc.

Summer Internship | Codezen Technical Solutions

May 2017

Android Developer Intern - Developed Android Applications for a real estate company

- Worked in developing a platform consisting of Agent and User Android Application, for displaying Real Estate in an area
- Implemented push notifications service and integrated *Property location* feature using Firebase and Google location API

Hostel App | Hostel 6, IIT Bombay

Aug 2016 - Mar 2017

- Created an Android application from scratch for providing various online facilities to inmates of Hostel 6
- Added event feed feature having picture of hostel events chronologically, and complaint management system for hostel

Dynamic Word Suggestion and Prediction | Prof. Varsha Apte, IIT Bombay

Sep 2015 - Nov 2015

Computer Programming and Utilization Course Project; Command-line based text prediction program using C++

- Designed and implemented various algorithms to provide word suggestions dynamically using concept of **statistics of word usage**, position of letters on keyboard and common errors while typing

POSITIONS OF RESPONSIBILITY

Core Team Member - Web | Student Alumni Relationship Cell, IIT Bombay

May 2017 - Mar 2018

Part of 16 member team connecting over 50,000 alumni and 10,000 students through various events and initiatives

- Managed and developed 5 sites for the cell including main site, blog, internship portal, mentor ship portal and yearbook portal
- Developed an **algorithm to recommended friends** on the basis of hostel, branch and department
- Added **automatic mailing** and **PDF generation** features to yearbook portal
- Executed code deployment and maintained live server using NginX and Gunicorn-Python

OTHER INTERESTS

Reading, Cooking, Music, Guitar, Rubber Bridge, Magic Tricks, Reddit