Rajat Majoka
Computer Science & Engineering
Indian Institute of Technology Bombay

160050031
UG Third Year (B.Tech.)
Male
DOB: 19-08-1998

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2019	6.57
Intermediate/+2	CBSE	jaipuria vidyalaya	2016	92.40
Matriculation	CBSE	jaipuria vidyalaya	2014	9.20

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 824** in JEE Advanced 2016 out of 150,000 students in India *2016*
- Secured **99.92 percentile** in JEE Main Paper I amongst 1.5 million students across India *2016*
- Awarded certificate of merit for being placed in **national top 1%** out of 39671 candidates enrolled in **National Standard examination in Chemistry** (NSEC) organised by IAPT *2016*
- Awarded certificate of merit for being placed in **state top 1%** candidates enrolled for **National Standard examination in Physics** (NSEP) organised by IAPT in Rajasthan *2016*

INTERNSHIP

Live Location Tracking via Instant App *December 2017*
Rupeek Fintech Private Limited

- Developed an Quantified Self Mobile App on **Android Studio** which could be used without installation
- Implemented **Google API Client** functionality in java through which company's server would get user's real time location and store it and update it from time to time

KEY PROJECTS

Railway Controller Logic Design *Spring 2018*
Guide : Prof. Supratik Chakraborty *IIT Bombay*

- Designed and implemented an FPGA based Railway signal controller module using **VHDL** front-end and C back-end
- Implemented USB communication between FPGA and PC using **FPGALink library**
- Designed and implemented protocols for communication across FPGA boards using **UART**
- Connected multiple FPGA, PC pairs through UART, treating each one as a different railway junction, allowing the information regarding railway tracks to be shared across multiple junctions

Racket Snake Game *Spring 2017*
Course Project *IIT Bombay*

- Implemented the classic Snake game using DrRacket in both **Multiplayer** and **Single player** with different level of hardness by introducing various obstacles and food
- Extensive use of **graphic user interface** with Universe and image teachpacks
- Rendered all GUI elements as simple images and arranged appropriately to simulate the snake's motion and gameplay
- Impelmented features of object oriented programming in a functional programming language through various higher order functions and data structures to improve the code

Graph Plotter *Autumn 2017*
Course Project *IIT Bombay*

- Developed an application to dynamically serve up graph/plot without using any previously-built framework
- A wide variety of graphs like line graph, scatter plot, histogram, contour plot, etc. for different kinds of input
- The application could solve various equations/inequations and using the animation
- Used Tkinter for interface, SymPy and Numpy for scientific computing and pandas for input data analysis

Movie Recommender System *June 2018*
Self Project *Coursera*

- Developed a movie recommendation system in **Octave** using popular **collaborative filtering** learning algorithm
- Provided movie recommendations to the user using similarities in rating pattern of user and critics

File Transfer System
Course Project

Spring 2018
IIT Bombay

· Built a system using socket programming to transfer files between source and clients on a local network
· Implemented Transmission Control Protocol using C++.

Gravity Simulator
Course Project

Spring 2017
IIT Bombay

· Built an N-body simulation for a system of particles under the influence of mutual gravitational force using Racket
· Implemented **Barnes-Hut algorithm** using list-comprehensions and trees reducing the complexity of problem

Curve Plotter
Course Project

Spring 2017
IIT Bombay

· Developed a language using Racket which has closure property and can plot points, construct graphs of functions as well as transform curves by rotating and scaling
· Implemented the language to draw various fractal curves such as **Gosper, Koch and Sierpinski**

Other Projects

· **Parser for mathematical expressions**: A module written in Racket which parses a mathematical string (combination of expressions and assignment), returning the parsed-stuff in the form of tree structures
· **Android App controlled bot**: Designed & constructed a robotic car for XLR8, a racing competition conducted by STAB (Student Technical Activity Body) by using ATTINY2313A for functioning of bot and an HC05 bluetooth module for wireless connection

TECHNICAL SKILLS

Programming Languages	C/C++, Python, Java, Bash, Prolog, MATLAB, PHP, SQL, Prolog,VHDL,LATEX
Development Tools	HTML, CSS, JavaScript, Bootstrap, Android Studio
Softwares and Other Tools	AutoCAD, SolidWorks, Doxygen, Git, Make, NumPy

KEY COURSES UNDERTAKEN

Computer Science	Computer Graphics*, Digital Image Processing*, Computer Architecture + Lab*, Database and Information Systems + Lab*, Operating Systems + Lab*, Automata Theory**, Implementation of Programming Languages + Lab**, Artificial Intelligence + Lab**,Computer Programming and Utilization, Abstractions and Paradigms in Programming, Data Structures and Algorithms, Discrete Structures, Computer Networks+Lab, Design and Analysis of Algorithms, Software Systems Lab, Digital Logic Design+Lab, Logic for Computer Science, Data analysis and Interpretation
Mathematics	Numerical Analysis, Calculus, Linear Algebra, Differential Equations, Data Analysis and Interpretation

* to be completed by November 2018 , ** to be completed by April 2019

POSITIONS OF RESPONSIBILITY

NSS Volunteer

2016-2017

National Service Scheme, Educational Outreach

• Contributed in year long social work conducted under Adult literacy program
• Taught English to several mess workers of our institute

EXTRACURRICULARS

• Secured first position in Institute Football league, IIT bombay.	*2017,2018*
• Secured first position in Freshie Intra Hostel Football Tournament, IIT bombay	*2017*
• Participated in Athletics cluster at District level organised by Central Board of Secondary education(CBSE) in Raffles International School, Rajasthan	*2012*
• Participated in Kho-Kho cluster at District level organised by Central Board of Secondary education(CBSE) in Shri Asharamji Public School, Rajasthan	*2012*
• Won numerous awards in Athletics events at Jaipuria Vidyalaya, Jaipur	*2011-15*