Computer Science & Engineering   **B.Tech.**
Indian Institute of Technology, Bombay   **Gender:** ████
                                              DOB: ████████

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2021	null
Intermediate	CBSE	██████████████	2017	89.40%
Matriculation	CBSE	████████████████████	2015	9.8

Scholastic Achievements

- Secured institute rank **1** and overall rank **19** in HackIITK Hackathon out of 12500 participants *(2020)*
- Secured **2nd** position in Capture The Flag competition in 8th Inter IIT Tech Meet *(2019)*
- Scored **98.52** percentile in **JEE Advanced** among 160,000 aspirants across India *(2017)*
- Scored **99.56** percentile in **JEE Main** among 1.2 million students across India *(2017)*
- Qualified for **Kishore Vaigyanik Protsahan Yojna** fellowship given by Govt. of India *(2016)*
- Recipient of **National Talent Search Examination** scholarship awarded by NCERT *(2015)*

Internship

Fixed Income Workbench   *Summer 2019*
Guide: Rakesh Kukreja & Joshua Rout   *Franklin Templeton Investments, Hyderabad*

- Improved and simplified the investment process of **Australian Fixed Income Department** by creating a web app in **Django** framework
- Built graphs using **HighCharts** (a javascript library) for **easy visualization** of the investment data
- Designed the database schema for optimized data storage and displayed the data using **DataTables** (a jQuery plugin) with user friendly filter options and search functionality
- Deployed the web app using **Apache** on an internal server of the company sitting in Australia
- Automated the process of downloading excel files using **Selenium**, saving a lot of time for users

Key Projects

Malware Detector-Classifier   *Summer 2020*
HackIITK Hackathon   *Self Project*

- Developed a malware detector cum classifier based on **static analysis** of PE files ensuring **zero risk** to host
- Processed **50GB** of malware and benign files to train high accuracy machine learning model
- Engineered important features based on practical malware analysis for **low overhead** of computation

BotNet Detector   *Summer 2020*
HackIITK Hackathon   *Self Project*

- Developed a network analysis tool for detection of **Peer-to-Peer** botnet infected hosts
- Analysed **47 Million** botnet and benign packets for the machine learning model used in detection
- Deduced network flows for transmission of botnet malware and further communications between infected hosts

The Typing Cat   *Self Project – Winter 2019*

- **Automated** a **typing test** on thetypingcat.com with a python script using **Selenium Web Driver**
- Achieved a speed of more than **250 WPM** (Words Per Minute) in the one minute typing test.
- Implemented a feature for **automatic sign in** which doesn't require any user input once the browser starts

Facial Expression Recognition   *Autumn 2019*
Guide: Prof. Ganesh Ramakrishnan   *Course Project*

- Built and trained a Convolutional Neural Network (**CNN**) to classify human faces into 6 different emotions
- Implemented **Voila Jones Algorithm** to detect and isolate human faces in the input image
- Developed a program that converted human faces to emojis based on the expression in real time

Secure Personal Cloud
Guide: Prof. Soumen Chakrabarti

Autumn 2018
Course Project

- Developed a cloud based file system using **Django Framework** that supports simultaneous multiple clients
- Implemented **client-side** encryption that give users complete control over the **encryption schema**
- Implemented **automatic synchronization** of files between client and server
- Developed a mobile-friendly Web Client that automatically detects and render common file formats

Mancala Game
Guide: Prof. Amitabha Sanyal

Spring 2018
Course Project

- Developed two player board game in Racket with double-player and single-player (Player VS Computer) modes
- Implemented **adjustable difficulty level** in single-player mode using MiniMax Algorithm
- Utilized the built-in **Racket GUI** libraries to add appealing graphics and sounds in the game

SAT Solver
Guide: Prof. Amitabha Sanyal

Spring 2018
Course Project

- Implemented **DPLL** (Davis-Putnam-Logemann-Loveland) algorithm in Racket to check for boolean satisfiability
- Generated value of variables so that boolean expression of conjunctive normal form evaluates to true
- Utilized this program to solve multiple other problems such as **N-Queens** and **Sudoku**

Web Crawler
Guide: Prof. S Sudarshan

Spring 2020
Course Project

- Built a JAVA application that utilizes Apache Spark to crawl all hyperlinks and their children from a web page
- Calculated page ranks to determine a rough estimate of the importance of a page

OSPF Protocol
Guide: Prof. Ashwin Gumaste

Spring 2019
Course Project

- Implemented Open Shortest Path First protocol in **VHDL** to build forwarding table in a router
- Coded Dijkstra's algorithm to determine next hop address while forwarding IP packets
- Modified the standard OSPF packets to increase efficiency of data transfer and processing

Regular Expression Parser
Guide: Prof. Amitabha Sanyal

Spring 2018
Course Project

- Converted regular expressions to **DFA** (Deterministic Finite Automaton) graph and used it to develop a minimalistic version of **egrep** in Racket to check if a given string and regex matches

TECHNICAL SKILLS

Programming	Python, C, C++, Java, Kotlin, Bash, Racket, Prolog, LaTeX, Perl, Assembly
Web Development	HTML, CSS, JavaScript, JQuery, PHP, SQL, Django, Flask, Jekyll
Software Tools	Git, Android Studio, Arduino, Unity, MATLAB, Docker
CTF Tools	Burp Suite, Ghidra, Wireshark, Metasploit, BloodHound, Nmap, Z3, pwntools

KEY COURSES UNDERTAKEN

Core Courses	Computer Networks, Operating Systems, Artificial Intelligence and Machine Learning, Automata Theory, Database and Information Systems
Electives	Foundations of Network Security and Cryptography, Automated Reasoning*, Innovation by Design*, Introduction to Blockchains Cryptocurrencies and Smart Contracts*

* to be completed by November 2020

EXTRA CURRICULAR

- Ranked **Pro Hacker** on **HackTheBox**, an online platform to practice and test cyber security skills *(2020)*
- Participated in **40+** international Capture The Flag competition in 2020 *(2020)*
- Frequently **blog** about penetration testing and hacking machines released weekly on HackTheBox *(2020)*
- Successfully completed a year long course in **Indian Classical Music** (Vocals) *(2017-18)*
- Worked as **Organiser** for Artificial Intelligence Workshop at **Techfest**, IIT Bombay *(2017)*
- Worked as **Organiser** in Hospitality Services **Mood Indigo**, IIT Bombay *(2017)*
- Made a personal best time record by solving a $3 \times 3 \times 3$ **Rubik's Cube** in **9.86 seconds** *(2016)*