Pursuing Honors in **Computer Science Engineering**; Passionate about **ML, RL, DL & Data Science**

Scholastic Achievements

- Bagged **Gold** Medal in **Bosch's Route Optimization** challenge at the 8th Inter IIT Tech Meet *2019*
- Secured **2nd** position in Capture the flag **Cyber security challenge** at the 8th Inter IIT Tech Meet *2019*
- Secured AIR **340** in IIT-JEE Advanced | AIR **176** in JEE Main Paper-I | AIR **90** in JEE Main Paper-II *2016*
- Amongst **Top 300** students in country qualified for **INPhO** (for two straight years) and **INMO** *2015,14*
- Achieved AIR **173** in KVPY Fellowship by IISc Bangalore | Recipient of NTSE Scholarship by NCERT *2014,12*
- Secured AIR **12** in 43rd National Mathematics Olympiad by **AMTI** | State Rank **4** in 41st **APAMT** *2013,12*

Internships & Research Experience

Amazon Development Centre India Pvt. Ltd. | Auto Trouble Ticket Manager *May - July 2019*

- Designed **runtime compilation** module using **Java Compiler API** to implement dynamic code execution
- Auto suggested the resolution of trouble ticket to perform the suggested resolution using Java Compiler package
- Developed **Generic Framework** to plug-in their own models for information retrieval

OYO - Oravel Stays Pvt. Ltd. | Price Elasticity estimation *May - July 2018*

- Designed a **prediction model** in **R** that predicts the likelihood for achieving certain profit from the current situation and gives the optimized path of **price movement** using probability-based analysis
- Implemented density-based clustering using **HDBSCAN density cluster model** to remove the outliers

Quantum Gate Optimization | R&D project *July - November 2019*

- Implemented Subspace Selective Self-Adaptive **Differential Evolution (SUSSADE)** technique
- Critically analyzed advantages of GrAPE with **Push-Pull optimization** and RL approaches like **Q-learning**, Deep-Deterministic **Policy gradient** methods and evolutionary RL for improving existing bounds for gate fidelity

Modular Quantum Computer Design | Master's Thesis Project *Ongoing*

- Implementing a modular RL framework for determining the optimal pulse sequence for any general quantum gate preparation using **Deep RL** through DQN, DDPG, Trust Region Policy Optimization and **Actor-Critic** methods

Interactive Image Segmentation | Bachelor's Thesis Project *Ongoing*

- Applying data augmentation strategies on medical images using Generative Adversarial Networks **(GANs)**
- Implementing interactive image segmentation in multi-tissue histopathology using **HoVer-net** on synthetic dataset

Academic Projects

Gomoku RL playing agent | Fundamentals of Intelligent agents *Autumn 2020*

- Created Gomuku playing AI agents using **Monte Carlo Tree Search (MCTS)** algorithm in C++
- Implemented efficient guided search using various heuristics to create different learning AI agents using **reward shaping** and setting up intelligent priors and utilized **multi-threading** to carryout rollouts in parallel

Depth Map Prediction From Single Image | Computer Vision *Spring 2019*

- Built two-stack CNN-Residual Network model to estimate depth map from a single RGB image
- Implemented **transfer learning** using pretrained **ResNet-50 network** to enhance the performance

Compiler for C-like language | Implementation of Programming Languages *Spring 2019*

- Developed a compiler and evaluator for a subset of C supporting functions, scope levels and control sequences
- Utilized **Lex** for **tokenizing, Yacc** for **parsing** and constructed **AST** to generate **MIPS** assembly code

Fake News Detection by Crowdsourcing | Database and Information Systems *Autumn 2018*

- Developed a web and android App for crowdsourcing the verification of spurious news articles
- Implemented **routing algorithms** to distribute tasks among volunteers based on domain specific knowledge

Features of XV6 | Operating Systems *Autumn 2018*

- Examined xv6 source code and implemented process scheduling algorithms like round robin and priority based.
- Implemented Memory management techniques like **lazy page allocation** and applications of **pthreads**

Positions of Responsibility

- **Department General Secretary** | CSE Department, IIT Bombay *April 2019 - July 2020*
- **Department Academic Mentor** | CSE Department, IIT Bombay *June 2020 - Present*
- **Teaching Assistant** | Programming Lab, Prof. Sai Vinjanampathy *August 2020 - Present*
- **Mentor** | Quantum Computing, Computer Vision : Maths and Physics Club *April - June 2020*