

Pursuing **Honors** in Computer Science and Engineering

Academic Achievements

- Secured All India Rank 304 in IIT JEE Mains 2018 out of more than 1 million candidates 2018
- Secured All India Rank 665 in IIT JEE Advanced 2018 among over 200 thousand candidates 2018
- Awarded the esteemed **Kishore Vaigyanik Protsahan Yojana** (KVPY) fellowship **twice** 2016 & 2017
- Recipient of the prestigious **National Talent Search Examination** (NTSE) scholarship 2016

INTERNSHIP

Analysis of Vector Addition Systems | *Prof. Alain Finkel, ENS Paris-Saclay* Summer 2020

- Studied Vector Addition Systems by building an understanding of **Karp-Miller Graphs**
- Read literature about the **Minimal Coverability Set** of Petri Nets, notably MinCov and QCover
- Worked on the non-trivial problem of devising an **algorithm** to construct the **semi-linear bases** for projections of reachability sets of Vector Addition Systems
- Verified and elucidated properties of a Karp-Miller Graph by writing **definitions** and **formal proofs**

KEY PROJECTS

Medical Image Segmentation using Recurrent Residual U-Net | *Course Project* Spring 2020

- Performed segmentation of **skin cancer** and **retinal blood vessel** images using deep neural networks
- Developed **R2U-Net** from scratch by augmenting a U-Net with **recurrent** and **residual** connections
- Trained it on ISIC and STARE+DRIVE datasets achieving good values for **Dice Coefficient** metric

Proofreading Rewriter | *Course Project* Autumn 2019

- Developed a Python-based **NLP** tool that detects and corrects spelling and grammar mistakes
- Implemented a **rewriting** feature which suggests alternative words and phrases using **online APIs**

Battleships | *Course Project* Spring 2019

- Developed a **GUI-based** implementation of the board game Battleships in the language **Racket**
- Incorporated ideas from **functional** and **object oriented** paradigms to design **probabilistic** algorithms

Traffic Signs Classification | *Self Project* Summer 2020

- Implemented a CNN based on **Inception** modules and **Spatial Transformation** layers from scratch
- Trained on the **GTSRB** dataset achieving almost 98% test accuracy with little to **no data augmentation**

Strategy and Game Theory | *Summer Of Science* Summer 2019

- Explored **Game Theory** formally by reading and reporting about Pareto Optimality, Nash Equilibria, Sequential & Bayesian Games, Subgame Perfection, and Nicky Case's **Game of Trust**

Bayesian Denoising and Image Reconstruction | *Course Project* Spring 2020

- Denoised brain **MRI** scans with **MRF** prior and **Huber** penalty using SGD with dynamic step sizing
- Performed CT image reconstruction in MATLAB using Radon transform and **filtered backprojection**

Spanning Tree Protocol | *Course Project* Spring 2020

- Built a **loop-free** logical topology of LANs and bridges by implementing the protocol in **C++**

TECHNICAL SKILLS

Programming C++, Python, MATLAB, Racket, SWI-Prolog, Java, JavaScript, HTML, CSS
Other Tools Git, VHDL, Tensorflow, Keras, NLTK, L^AT_EX, SQL, Wireshark, AutoCAD, Solidworks

POSITIONS OF RESPONSIBILITY

- **Teaching Assistant** for *ELIT* - English Language Improvement Training Summer 2019 & Spring 2020
- **Teaching Assistant** for *Logic for CS (Minor)* Autumn 2020
- **Lectures Coordinator** for IITB's Techfest 2019-20 Winter 2019

EXTRACURRICULAR ACTIVITIES

- Represented IIT Bombay at the 34th **Inter IIT Aquatics Meet**, held at IIT Guwahati 2018
- Hosted Mood Indigo's spell bee competition as the **quiz master** for two years 2018 & 2019
- Swam continuously for **12 hours** covering **17 kms** at **Swimathon**, IITB's annual swim marathon 2019
- Bagged trophies in **mridangam** competitions at various fine arts societies in Mumbai 2016-2018
- Represented Mumbai Region at KVS **National Swim Meets** for 3 consecutive years 2013-2015