

# Meet Taraviya

COMPUTER SCIENTIST · SOFTWARE ENGINEER · AI RESEARCHER

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## Education

### University of California, Los Angeles

MASTER OF SCIENCE IN COMPUTER SCIENCE

- / 4.00

September 2019 - present

### Indian Institute of Technology, Bombay

BACHELOR OF TECHNOLOGY WITH HONORS IN COMPUTER SCIENCE AND ENGINEERING

9.32 / 10.00

July 2015 - May 2019

## Experience

### Samsung Research Institute Delhi

HEART RATE ESTIMATION FROM VIDEO AND PPG DATA STREAMS

Noida, India

Summer 2018

- Analyzed photoplethysmogram data and video to **estimate subject heart rate**, accounting for inaccuracies in each input.
- Developed a **GUI platform** to compare and visualize the performance of different algorithms running in parallel in real time.

### Greendzine technologies

DETECTION OF FAILURE MODES IN ELECTRIC VEHICLES

Bangalore, India

Summer 2017

- Developed a **machine learning algorithm** to identify current terrain type and patterns in rider behaviour.
- Used terrain type and corresponding rider behaviour profile to identify **abnormal usage patterns** and new trends.

### Edelweiss Financial Services

AUDIT APPLICATION FOR ALGORITHMIC TRADING SYSTEMS

Mumbai, India

Winter 2016

- Developed an application to audit and report daily changes, deletion and creation of files on multiple **algorithmic trading servers**.

INTEREST RATE PREDICTION FOR GOVERNMENT SECURITIES

Winter 2016

- Implemented HJM and CIR models of **predicting future CAGR** for treasury bills and government bonds.

## Publications

### A Tighter Analysis of Randomized Policy Iteration

Tel Aviv, Israel

UNCERTAINTY IN ARTIFICIAL INTELLIGENCE, 2019

July 2019

- Worked with Prof. Shivaram Kalyanakrishnan to prove **exponentially tighter upper bounds** for Randomised Policy Iteration.
- Ran experiments confirming our theoretical findings and presented the research at the conference venue as the **first author**.

## Projects

- Posed the game of Nim as a planning problem and implemented **reinforcement learning** algorithms like SARSA, PPO and A2C to solve it.
- Compiled movie data available before release of movies and ran **machine learning** algorithms to predict boxoffice collection and IMDB rating.
- Programmed a FPGA Board in **VHDL** to simulate ATM functionalities of cash withdrawal, cash loading and communication with a C backend.
- Programmed an Atmel AVR board with a modified version of the **PID algorithm** to control a line following robot.
- Designed and implemented link and application layer **network protocols** to support the backend of a self-made group chat application.
- Created a website and its **Django powered back-end** which combined the platforms for internship, placements and training blog at IIT Bombay.
- Implemented all steps of the **graphics pipeline** using OpenGL/C++ and made an application to create/view/edit 3D models and scenes.

## Skills

- **Programming** — Expertise: C++ | Python | C | C# — Proficiency: Java | R | Matlab
- **Data Analysis** — Expertise: Matlab | gnuplot | tensorflow — Proficiency: Keras | Excel VBA | scikit-learn
- **Others** — Expertise: HTML | CSS | Django | Flask |  $\text{\LaTeX}$  | SQL | PLY — Proficiency: git | Unity | OpenGL | Apache Spark | sympy | Box2D

## Courses

- **AI/ML** — Data Analysis and Interpretation | Foundations of ML | Artificial Intelligence | Applied Stochastic Processes | Intelligent and Learning Agents | Optimization | ML for Bioinformatics | Computational Robotics
- **Others** — Applied Algorithms | Competitive Programming | Network Security and Cryptography | Formal Models | Computer Graphics

## Academic Accolades

- Secured **All India Rank 39** in engineering entrance exam **JEE Main** 2015 among 1.3 million candidates in India.
- **Ranked 13** in India in the competitive programming contest **ACM ICPC** Kolkatta/Kanpur site.
- Received **full time job offer** in July 2019 in machine learning research from **Google Research India**.