Meet **Taraviya**

COMPUTER SCIENTIST · SOFTWARE ENGINEER · AI RESEARCHER

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Education

University of California, Los Angeles — *- / 4.00*

MASTER OF SCIENCE IN COMPUTER SCIENCE — *September 2019 - present*

Indian Institute of Technology, Bombay — *9.32 / 10.00*

BACHELOR OF TECHNOLOGY WITH HONORS IN COMPUTER SCIENCE AND ENGINEERING — *July 2015 - May 2019*

Experience

Samsung Research Institute Delhi — *Noida, India*

HEART RATE ESTIMATION FROM VIDEO AND PPG DATA STREAMS — *Summer 2018*

- Analyzed photoplethysmogram data and video to **estimate subject heart rate**, accounting for inaccuracies in each input.
- Used **image processing** and **signal analysis** to improve the performance of the heart rate estimation algorithm in the presence of external noise.

Greendzine technologies — *Bangalore, India*

DETECTION OF FAILURE MODES IN ELECTRIC VEHICLES — *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 — *Mumbai, India*

AUDIT APPLICATION FOR ALGORITHMIC TRADING SYSTEMS — *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.
- Reviewed existing literature in **multi-agent coordination and learning** for robot soccer competitions, for the course Computational Robotics.
- 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 | 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.
- Appointed as the teaching assistant for the graduate level course **Tools for data science** by UCLA statistics department.