

MOHD SAFWAN

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EDUCATION

Indian Institute of Technology Bombay, Mumbai, India — Graduated in June 2022
B.Tech + M.Tech, Electrical Engineering (Communication and Signal Processing) GPA: **8.42/10**
Thesis: Intelligent Learning Agents for Board Games ([paper](#)) ([slides](#))

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 457 / Top 0.23%** in JEE Advanced 2017 out of *200,000* students.
- Ranked in **Top 0.12%** students in JEE Main 2017 out of *1.2 million* students.
- Was placed in **Top 1%** in National Standard Astronomy Olympiad and selected for INAO.

WORK EXPERIENCE

Quantitative Researcher — [Millennium Management](#) Jul '22 - *Present*

- Created US equities signals composite: daily rebalance, **3 Sharpe ~10 day holding period**.
- Wrote infrastructure for creating long horizon features from L3 tick by tick data.
- Most signals based on Microstructure, Price Volume, Options Vol Surface, Holdings/Flows, etc.
- Created novel ML pipelines to create uncorrelated signals from black box features.
- Used novel ways to measure and control factor risk, leading to a better Sharpe ratio.
- Significantly improved performance of the tooling used for parallelizing python computations.

Reinforcement Learning Intern — [WinZO Games](#) Jan - Jun '22

- Created a deep reinforcement learning algorithm for learning multiplayer board games via self play.
- Wrote a complete learning framework for generic board games and deployed trained agents in production.

Applied Scientist Intern — [Matching Quality Team, Amazon](#) Summer '21

- Built multilingual and multimodal deep learning based models to match products with search queries.
- Optimized the training time by **75%** and achieved upto **10%+** gains in F1 scores over multiple locales.

Co-founder, Technical Lead — [Augle AI \(augle.ai\)](#) Jan '19 - Dec '20

- Built and deployed multiple Imaging, Vision and AI solutions as APIs to various clients using **AWS services**.
- Managed a team of more than 8 researchers and developers to iteratively improve our solutions.
- Won** Startup Jalsa 2019 and secured funding at **5.3 Cr** valuation. **Winner** of E Cell's Eureka IITB track.

Finding Images/Videos using a Selfie — [Freelance Project, Reels & Frames \(picsniff.com\)](#) Summer '20

- Developed a solution to find all photos and videos of a person from a collection with **95%+ accuracy**.
- Optimized the search time to a **few milliseconds** for searching in 1000 images with multiple faces in each.

KEY PROJECTS

Parallelized Verification of Conjecture for Metric Dimension — [C++](#), [CUDA \(link\)](#) Spring '21

- Wrote C++ code to verify the conjecture for metric dimension of a grid graph augmented with one edge.
- Implemented own Hash Set on GPU due to lack of STL library and got **200x** improvement with CUDA.

Petr : An Open Source Python Library — [Computer Vision \(link\)](#) Spring '20

- Developed a fast library for working with 2D geometric transforms with **300+** monthly downloads.
- Wrote unit tests with full coverage with automated tests and build checking at every push using Travis CI.

POSITIONS OF RESPONSIBILITY

Teaching Assistant | Control Systems Lab, Digital Signal Processing Lab. 2021-22

Convener, Web & Coding Club | Conducted various boot-camps and competitions for the club. 2018-'19

TSS Instructor | Taught 100+ students Python and concepts of Object Oriented Programming. Autumn '19

School of Science | Mentored 4 freshmen in implementing basic DL algorithms from scratch. Summer '19