Atharv Jain

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EDUCATION

Massachusetts Institute of Technology | Cambridge, MA *May 2026*

- Candidate for B.S. in Computer Science and Mathematics | GPA: 5.0/5.0
- Relevant Courses: Machine Learning (Graduate), Advanced Algorithms (Graduate), Discrete Probability & Stochastic Processes (Graduate), Fundamentals of Statistics, Linear Algebra, Computation Structures, Fundamentals of Programming.

EXPERIENCE

MIT Robust Robotics Lab, ML/Robotics Researcher | Cambridge, MA *March 2024 – Present*

- Developing a predictive model that correctly projects the trajectory of an object when pushed with over 90% accuracy.
- Implementing NN architecture like PointNets, Transformers, and Neural Processes to do Variational Inference in PyTorch.
- Simulating over 10,000 objects in PyBullet and working with 3D geometry to be able to generate data to train the model.
- Using my model "Pushing Attention Neural Processes" to develop an uncertainty-aware planner for pushing objects.

MIT Formula Motorsports, Software Team Member | Cambridge, MA *January 2024 – Present*

- Developed C++ code for the charger shutdown board to develop an efficient and safe charging system for the car.
- Improving control algorithms by 25% by simulating four-wheel drive cars in Jupyter notebooks and iterating on algorithms.

MIT EECS, Intro to Machine Learning Lab Assistant Instructor| Cambridge, MA *August 2024 – Present*

- Helping students with ML concepts such as neural networks, MDPs and reinforcement learning during office hours.

MIT Laboratory for Information & Decision Systems, ML Researcher | Cambridge, MA *February 2024 – May 2024*

- Developed a deep learning model in PyTorch to predict failure ISC faults in EV cars early with over 80% accuracy.
- Reviewed literature on ML and researched methods to combine different data types into usable features for the model.

EasyFunCoding, Algorithms & Coding Instructor | Remote *April 2023 – April 2024*

- Taught complex algorithms as part of USACO Silver curriculum including DFS, BFS, Union Find, and Binary Search.
- Resulted in 85% of students performing better in coding competitions than before they joined my class.

MIT Document Processing Group, Software Developer | Cambridge, MA *September 2023 – December 2023*

- Developed techniques to automate the extraction of key-value pairs from invoices using Google Cloud Vision in Python.
- Researched ways to sort documents based on type by recognizing patterns in text through LLMS and various algorithms.

Skyline Robotics Club| Sammamish, WA *September 2019 – June 2023*

- Led the development of award-winning autonomous code for robot in Java using odometry and reflective tape as guides.
  - Robot was capable of driving to specific locations over a 15 second period and precisely picked up and dropped objects.
- Designed a ball-shooter to be accurate from 20 feet. Tuned PID to result in accurate aiming by utilizing various robot sensors.

PROJECTS

PokerBots *January 2024 – February 2024*

- Implemented the Counterfactual Regret Minimization algorithm to solve Auction Hold'em, a variant of Texas Hold'em
- Enhanced game state management by applying Monte Carlo sampling, game abstractions, and limited look-ahead depth.
- Optimized computational performance through parallelization and vectorization techniques in C++.

Tech.Tote *January 2024 – February 2024*

- Built a web platform in four weeks using Express.js, React.js, and MongoDB to enable students to trade grocery runs.
- Completed the project over a span of four weeks with features such as user authentication and real-time notifications.

Spartabots Scouting App *January 2023 – March 2023*

- Created Flutter app to streamline robotics team's scouting in areas with no cell service, utilizing SQL to store data on device.
- Automated Firebase & Excel to store and visualize data and developed a pipeline to aggregate over 50 people's data.

AWARDS & ACCOMPLISHMENTS

- **USACO Finalist / Camper**, Placed 25/~10,000 in nationwide CS Olympiad. *May 2022*
- **AIME Qualifier**, Top 5% on AMC 12 (nationwide exam on computational math). *2021 – 23*

SKILLS & INTERESTS

- **Skills:** Python, Java, C/C++, Assembly, React.js, TypeScript, HTML/CSS, Dart, Bash, LaTeX, Microsoft Excel, Git
- **Interests:** Software Engineering, Machine Learning, Robotics, Algorithms, Trading, Teaching, Economics, Poker, Sports.