Aayush Gupta

410 Memorial Drive: 432D, Cambridge, MA 02139

aayushg@mit.edu
408 621 8354
aayushg.com
github.com/Divide-By-0
linkedin.com/in/aayushgupta0

EDUCATION

MIT
Class of 2022, 5.0 GPA
Computer Science

Saratoga High School
Class of 2018
High Honors

RESEARCH

A Decision-theoretic Approach to Detection-based Target Search with a Drone (2017) (arXiv, first author)

Accepted+presented at 2017 IEEE/RSJ Int'l Conf on Intelligent Robots and Systems (IROS)

Improved rescue finding time by 3.3x compared to heuristics with reinforcement learning, modeled as a partially observable Markov decision process.
Used Julia, SARSOP, and Python to build and test on custom built drone. Led team of 3.

Dynamic Pricing via Reinforcement Learning for Multi-Objective Ridesharing Optimization (2017)

Accepted to BayLearn 2017

Showed 12% profit increase by optimally lengthening average wait time by only 2.3%.
Used Julia, SARSOP, and Python with reinforcement learning to produce a Pareto curve.

Self-attention for Graph Neural Networks (2019)

Won MIT Generator award for Best Project 2018

Replaced standard message passing steps with query-key-value attention from NLP.
Predicted computational chemistry properties on QM9 dataset.

WORK EXPERIENCE

NVIDIA AI Intern: Self-driving Perception Team (2020)

- Created metrics pipeline in Tensorflow, making model evaluation 10x faster.
- Analyzed model performance in Python to discover model bias.
- Tested performance of Tensorflow models with different superresolution heads.

Lipoker.io Founder (2020)

Created lipoker.io, the first videochat poker site with no signup or downloads.
Led team of 4 to direct vision and build production-level product.
- Created backend with Flask, SQLAlchemy, PostgreSQL. Expanded with team.
- Built frontend in React from scratch. Expanded with team.
- Led team to deploy on GCP Google Compute Engine with Gunicorn and Nginx.
- Grew to 10,000+ monthly sessions and partnerships with gather.town and others.

Copysmith AI CTO/Cofounder (2020)

- Created MVP for startup and grew to 100+ users
- Recruited + led team of 6 engineers and designers
- Deployed generative NLP model in Pytorch with AWS and Cortex to autoscale to 100K+ users

Scale AI Intern (2019)

- Used Node.js, React, MongoDB, SQL, Python to model untrusted connected component detection of labelers for a 95% confidence interval on bounding boxes.
- Decreased LIDAR labeling errors by 8%, with new incentives in React and TS.

Securiti.ai Winter Intern (2019)

- Coded custom dilated convolutional neural networks for unique image-based natural language processing applications with Google Colab and Pytorch.

Auto-LaTeX Equations Creator (2015-19)

Over **1,000,000** weekly users , 4.0+ star rating.

- Coded and branded own Google Docs add-on for LaTeX equations.
- Marketed to professors and admins with cold emails to adopt for education.

AWARDS

USA Computing Olympiad National Camp Finalist (2016)
Chosen as top 28 pre-collegiate competitive programmers to compete for USA team spot. Mastered algorithms such as dynamic programming, binary trees, and graph theory with C++.

Putnam Top 500 Math Undergrads (2018)

USA Junior Math Olympiad Qualifier (2016)
Selected as top 200 out of over 70,000 pre collegiate students to compete for national camp spot.

USA Physics Olympiad Silver Medal (2017)
Recognized as top 150 precollegiate physics students in the USA.

Datathon Winner (2019)
Won 3rd place at Boston Datathon.

North American Computational Linguistics Olympiad Finalist (2016)
Recognized as top 50 in USA to compete for national team.

SKILLS

Python, JS, TypeScript, Flask, React.js, Node.js, C++, PyTorch, MongoDB, SQL, SQLAlchemy, Java

Data Science, Math, Research, Algorithms, Neural Networks

MIT CS COURSEWORK (5.0 GPA)

Current:
6.172 - Performance Engineering
6.047 - Computational Bio

Past:
6.864: Graduate NLP
6.857: Graduate Security
6.867: Graduate Machine Learning
6.438: Graduate Algorithms for Inference
6.890 Deep Learning for Algorithms
6.036 Intro to Machine Learning
9.66 Computational Cogsci
6.033: System Design
6.046 Advanced Algorithms
6.041 Probability
6.004 Computation Structures
6.03 EECS for Medical Devices