

# Aayush Gupta

MIT 2022 Computer Science BS/MS, 4.8 GPA

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## RESEARCH

### DINOHash: Adversarially Robust Perceptual Hashes ([CODEML: ICML '25](#))

- Started and led research effort into adversarially training alternative to Neuralhash
- Proposed better alternative to watermarks for image provenance via DinoV3 fine tuning

### PLUME: A New ECDSA Nullifier Signature Scheme ([slides](#), 2022)

- First anonymous, unique identifier for ECDSA nullifiers for MS thesis, with [11 citations](#)

### Interpretable Epigenetic Clocks to Infer Aging Mechanisms ([bioRxiv '20](#))

- First work to analyze multi tissue age prediction using gradient boosted trees
- Research in team of 3 under Elvira Kiniza in Manolis Kellis lab

### Self-attention for Graph Neural Networks in Computational Chem (2019)

**Won** MIT Generator award for Best Project 2018

- Replaced message passing with query-key-value attention on QM9 dataset.

### RL for Target Search with Drones (2017) ([arXiv](#), first author)

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

- Improved rescue time by 3.3x with RL via a POMDP. Cited by 25
- Used Julia, Sarsop, and Python to build and test on a custom built drone. Led team of 3.

## WORK EXPERIENCE

### Proteus Cofounder ('26)

- Built multi-device computer use harnesses with tree based speedups and RL ([post](#))

### Alegria Neurotech ('25)

- First team ever to write fake smells to people's noses: [writetobrain.com/olfactory](https://writetobrain.com/olfactory)
- Built 1.5 PB cluster for data factory and built microbubble reconstruction from ultrasound

### ZK Email Cofounder ('25)

- Invented new primitive for zk proofs of emails, scaled to 10 people and \$1M+ revenue

### OpenPassport Cofounder ('24-'25)

- Acquired by [self.xyz](#). Helped with technical architecture, funding, hiring, and acquisition.

### Genesis Therapeutics: Molecular Machine Learning Team (2021)

- Researched new equivariant graph neural networks using cross products for drug prediction

### ETH University (2021 Winter, [Github](#), [Blog Post](#))

- [Wrote and deployed](#) platform for anonymous group posting

### NVIDIA AI Intern: Perception Team (2020)

- Used Tensorflow to build superresolution heads + correct model bias. Sped eval by 10x

### Lipoker.io Founder (2020)

Created [lipoker.io](https://lipoker.io), the first videochat poker site with no signup or downloads. Led team of 4.

- Created with Flask, SQLAlchemy, PostgreSQL, React, on GCP with Gunicorn and Nginx.
- Grew to 10,000+ monthly sessions and partnerships with [gather.town](#) + others

### Copysmith AI CTO/Cofounder (2020)

- Recruited + led team of 6 engineers and designers. Created MVP for 100+ users.
- Deployed generative NLP model in Pytorch with AWS and Cortex, scalable up to 100K users.

### Scale AI Intern (2019)

- Modeled untrusted labelers for 95% confidence interval on bounding boxes
- Reduced LIDAR labeling errors by 8% via new incentive system in React, SQL, TS, Python

### Auto-LaTeX Equations Creator (2015-)

Over **30,000,000** weekly users, 4.0+ star rating.

- Coded and branded a Google Docs add-on to render LaTeX equations

## AWARDS

### USA Computing Olympiad National Camp Finalist (2016)

Top 28 pre-college competitive programmers vying for team USA spot. Mastered algorithms like dynamic programming, binary trees, and graph theory in C++.

### Putnam Top 500 (2018)

### USA Junior Math Olympiad (2016)

Top 200 of > 70,000 students.

### USA Physics Olympiad Silver (2017)

Top 150 physics students in the USA.

### Boston Datathon Winner 3<sup>rd</sup> (2019)

### North American Computational Linguistics Olympiad Finalist (2016)

Top 50 in USA.

## PROJECTS

### Hack Lodge Organizer (2019)

### MIT [Applied AI Labs](#) Founder ('20)

### Research in Sontag Lab (2021)

### Securiti.ai Winter Intern (2019)

## LANGUAGES

Python, Pytorch, JS, C, C++, Java, Rust, Go, Julia, Solidity, Circom

## MIT CS COURSEWORK (4.8 GPA)

### Graduate

6.824: Distributed Systems

6.871: ML for Healthcare

6.172: Performance Engineering

6.864: Graduate NLP

6.867: Graduate Machine Learning

6.438: Algorithms for Inference

6.890: Deep Learning + Algorithms

6.857: Cryptography and Security

### Undergraduate

6.047: Computational Bio

6.036: Intro to Machine Learning

9.66: Computational Cogsci

6.033: System Design

6.046: Advanced Algorithms

6.041: Probability

18.100B: Real Analysis

8.041: Quantum Physics I

6.03: EECS for Medical Devices

6.UAT: Communication

6.004: Computation/Assembly