

## Education

### Massachusetts Institute of Technology

Cambridge, MA

- B.S. in *Physics* and B.S. in *Electrical Engineering & Computer Science*
- M.Eng in *Electrical Engineering & Computer Science* (focus: **AI, Signal Processing**)  
--- Thesis: Active Cancellation + Physics-Inspired DL for EMI Mitigation in **Portable MRI**

Sep 2019 - Jun 2023

(GPA 5.0/5) Sep 2023 - Aug 2024

Coursework: *probability, statistics, discrete, linalg, inference, algorithms, cryptography, security, embedded, circuits, control, robotics, microcontrollers, quantum, ML, DL, CV, AI bias, TinyML*

## Experience

### Martinos Center for Biomedical Imaging

Cambridge, MA

Researcher/Engineer in Portable, Low-Field MRI Devices

Nov 2023 – Aug 2024

- Developed ML models to reconstruct brain images from noisy data and designed active cancellation methods to enhance dynamic range
- Built and maintained a portable scanner, including rack setup, machining parts, RF coil production & tuning, RF power management, pulse sequences

### Center for Constructive Communication, MIT Media Lab

Cambridge, MA

Researcher/Developer in Decentralized Social Networks

Aug 2023 – Feb 2024

- Built NLP app as a research tool for community-based audio snippet sharing (React-Native, Postgres, AWS)

### PhotonicsAI Lab, Yerevan State University

Yerevan, Armenia

Researcher in Chaos, Optics, and ML

Jun 2023 – Aug 2023

- Improved accuracy of optical computer for scalable, parallel, energy-efficient reservoir computing on chaotic dynamical systems
- Worked on chaos simulation/analysis + ML network/data design, led 'research dev-ops' setup, and handled system testing

### RespiQ – Breath-Tech Startup

Leiden, Netherlands

Algorithmic/Software Engineering Intern for R&D

Jun 2022 – Aug 2022

- Developed a data processing pipeline and associated software from scratch (built entire codebase)
- Created statistical metrics for prototype progress and handled various technical roles in a small team

### Resilient Infrastructure Networks Lab, MIT Civil Engineering

Remote

Researcher in Semiparametric Transportation Modelling

Jun 2020 – Oct 2020

- Created various ML models to predict accident behavior, quantified inefficiency due to imperfect information (counterfactuals)
- Explored how time/day, amount of information, and time lag affect the transportation mode choice near the Bay Bridge

### Crusoe Energy Systems

Brooklyn, New York

Data Science Intern

Jan 2020 – Feb 2020

- Wrote data queries for monitoring (SQL), worked on front end display, produced emissions reports

## Skills and Projects

### Technical Skills:

- **Proficient (Software):** Python, C/C++, JS, Bash, Pytorch, Data (SQL/graphQL/pandas), Web/App (React/Flutter/Django), Matlab
- **Familiar (Software):** Assembly, Java, Go, AWS, Flask, Docker, JWT/WebAuthn, KVM, Cluster Computing
- **Other (Misc):** Latex, Oscilloscope, Circuits, Music Processing, Solidworks, LTspice, illustrator, 3d-printing, optics, makerspace

### Software Projects:

- **Fantasy Premier League AI** (*Python, Pandas*) - **Full-stack, automated bot** for complex game with planning (~10k lines)
- **MemoryCenter** (*Flutter, Django, Firebase, Heroku*) - **Flashcard app** for effective long-term memory retention and management. **Deployed on ios and web.**

### Engineering/Math Projects:

- **Ulaanbaatar Heating Initiative** (*MIT/Mongolia-Universities Collaboration*) - **Fall course + Fieldwork in Mongolia** in January 2023. Applied **anthropological** (ethnographic research, stakeholder involvement) and **engineering** (sensors, molten salt) tools to complex **heating** situation.
- **Supergroups White Paper** ([link](#)) – Developed **superior tournament format** for irregular # of competitors, suggested a promising new field for applied combinatorics

### Notable Coursework Projects:

- **Underactuated Robotics:** Project chosen for **class website hall of fame** (*Trajectory Optimization for Continuous Contact Brachiation on Gapped Bars*)
- **Tiny ML & Efficient DL:** Placed **2<sup>nd</sup>/32 in sponsored class competition** (*Persistent Personal Assistant via Streaming-LLM + T5-Summarizer + Prompt Eng.*)
- **Responsible AI in Human Contexts:** Well-received public kaggle notebook (*Debiased Foundation Models and their Downstream Trajectories*)

## Additional Information

### Teacher / Mentor

- **Team Lead, MIT Global Teaching Labs Bahrain** – ran two 2 week robotics camps for high schoolers in Manama, Bahrain during January 2024  
- Responsibilities included teaching, coding, 3d printing, designing curriculum, organizing talks, distributing work, documenting via a blog, coordinating with administration
- **Fraternity Scholarship Chair** - Served as Fraternity (PSK) Scholarship Chair – Designed systems for collaboration, helped orient Freshmen
- **Teacher at MIT Splash 2019** - Co-Taught class on “Puzzles & History of Mathematics” of our own design to 30+ students in *Splash 2019*
- **Tutor / Coach** - Tutored & coached Math/Physics to a variety of learners ages 6-18 for 10+ years

### MIT Varsity Soccer Player

- 2-Time All-NEWMAC (All-Conference) Team, in 2021 team was ranked 6<sup>th</sup> in the country, Attacking Midfielder

### MIT Laptop Ensemble (Improvisational Electronic Music)

- **Live Coding:** Interdisciplinary Conference on Musical Media @Harvard, 5/2023; Living Machines event at ZuZu bar in Cambridge 10/2022, Tiny Concert Hall Opener May '24
- **Modular Synths:** Performed at MIT 2023 Spring “Met Gala”; Performed in several MIT concerts

### Self-Taught Chess Player

- Repeat World Open Section **Champion** (2018: [1<sup>st</sup>/82](#), 2019: [1<sup>st</sup>/165](#)) **Tactics:** lichess: 2700+, chess.com: 3300+ **USCF:** Class A