John Flynn

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Education

Massachusetts Institute of Technology — **Cambridge, MA**

- B.S. in **Physics** and B.S. in **Electrical Engineering & Computer Science** — Sep 2019 - Jun 2023
- M.Eng in **Electrical Engineering & Computer Science** (focus: AI) — Expected Finish: Jun 2024

Notable Coursework

Math: Probability, Statistics, Discrete, Cryptography **Physics:** Materials, Relativity, Statistical, Quantum, Experimental
CS: Programming, Algorithms, Data Structures, ML, Underactuated Robotics (G), Computer Vision, Security (G)
EE: Circuits, Signals, Inference, Feedback Control (G), Embedded Systems, Microcontrollers

Work Experience

PhotonicsAI Lab, Yerevan State University — **Yerevan, Armenia**
Researcher in Chaos, Optics, and ML — Jun 2023 – Aug 2023

- Implementing 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

- Created from scratch data processing pipeline and associated software
- Invented statistical metrics for quantifying progress of prototype development
- Took on many roles in small technical team (designing & debugging prototype, meeting w. suppliers/consultants, logistics)

Resilient Infrastructure Networks Lab, MIT Civil Engineering — **Remote**
Researcher in Semiparametric Transportation Modelling — Jun 2020 – Oct 2020

- Studied transportation networks near the Bay Bridge, with a focus towards an accident on 5/29/19
- Created various ML models to predict accident behavior, quantified inefficiency of the system due to imperfect information
- Explored how time/day, amount of information, and time lag affect the transportation mode choice

Crusoe Energy Systems — **Brooklyn, New York**
Data Science Intern — Jan 2020 – Feb 2020

- Wrote queries for data metrics, worked on front end display, produced report on company emissions and recordkeeping

Featured Projects

Programming

- **Fantasy Premier League AI** (*Python, Pandas*) Full-stack, automated bot for complex game with planning (~10k lines)
- **MemoryCenter** (*Flutter + Django*) Flashcard app for effective long-term memory retention and management
- **Pyfit** (*Python, Pytorch*) Personal machine learning library
- **Project Videos from MIT EECS Classes**: https://www.youtube.com/channel/UCjZKFsU9tO_N3cvgNNdNYRA/videos

Engineering

- **Ulaanbaatar Heating Initiative** *(MIT/Mongolia-Universities Collaboration)* Applied anthropological (ethnographic research, stakeholder involvement) and engineering (sensors, molten salt) tools to complex heating situation in Mongolia

Activities

MIT Varsity Soccer Player

- **University:** 2-Time All-NEWMAC (All-Conference) Team -- **HS:** State Champion, Captain, All-State (VA) and All-Metro (DC) Teams

MIT Laptop Ensemble (Music)

- **Live Coding:** Interdisciplinary Conference on Musical Media @Harvard, 5/2023; Living Machines event at ZuZu bar in Cambridge 10/2022
- **Modular Synths:** Performed at MIT 2023 Spring "Met Gala."; Performed in several MIT concerts

Self-Taught Chess Player

- Repeat World Open **Champion** (2018 u1400 1st/82, 2019 u1600 1st/165, 2021 u1800 T-8th/149) **Tactics:** lichess: 2600+, chess.com: 3200+

Teaching

- Served as Fraternity (PSK) Scholarship Chair – Designed systems for collaboration, helped orient freshmen
- Co-Taught class on "Puzzles & History of Mathematics" of our own design to 30+ students in *Splash 2019*
- Tutored & coached Math/Physics to a variety of learners ages 6-18 for 10+ years, currently active

Skills

Technical (software): Python, C/C++, Assembly, Bash, SQL, Pytorch, Web (React/Flutter/Django), Go
Technical (other): Latex, Oscilloscope, Circuits, Music Processing, Solidworks, LTspice, illustrator, optics, AIME
Language: English (native), Russian (advanced), Spanish (intermediate)