Neil Malur

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Education

Massachusetts Institute of Technology Cambridge, MA
B.S. Candidate in Computer Science and Engineering • **GPA:** 5.0/5.0 Anticipated Graduation May 2025
Relevant Coursework: Machine Learning, Software Design, Algorithms, Probability, Systems, Computer Architecture, Neural Circuits
Activities + Leadership: South Asian Association of Students (president), Mock Trial, AI@MIT Labs, Mirchi, Student Government

Weston High School Weston, MA
Selected Leadership: Science Team (president), Debate Team (captain, co-founder), National Honor Society (president) 2017 – 2021

Work Experience

United States Department of Commerce Washington, D.C.
Intern, Office of the Under Secretary for Economic Affairs May 2023 – present
- Spearheading ML + software capacity at the Department to create regional inequality-based investment recommendations
- Authored in-depth economic study + interviewing local stakeholders, undertaking data consulting projects for other agencies
- Refined bureau strategy and role, prepared materials for the Under Secretary, and communicated results to non-technical staff

MIT Climate and Sustainability Consortium Cambridge, MA
Machine Learning Researcher May 2022 – Jan 2023
- Engineered novel graph neural network + reinforcement learning architecture to predict polymer properties + biodegradability
- Built software interface to simulate crystallization with enhanced molecular dynamics for chemist users to interact with model
- Directed team discussions on tackling challenge of large state spaces and on implementing graph and adversarial learning

Conjuguemos Remote
Software Engineering Intern 2019 – 2021
- Led, designed, and launched full cross-platform classroom and learning system cloud integration for learning during COVID-19
- Produced new database features, algorithms, and pages as 1 of 3 total developers, and counseled on price restructuring
- Expanded user growth to over 4.2 million individuals and 32,000 schools by devising + managing SEO practices for exposure

Harvard-MIT Biomedical Cybernetics Laboratory Cambridge, MA
Researcher 2018 – 2021
- Boosted patients' treatment accessibility by computationally structuring eligibility criteria to support automated trial matching
- Leveraged medical NLP, innovative ML frameworks, and a novel templating algorithm to overhaul 200,000 clinical trial criteria
- Headed lab work and coordinated construction of an end-to-end reproducible ML pipeline; first author on 2 resulting papers

Projects

MIT Web Lab Cambridge, MA
Homemade 2022
- Built React-based site with hooks to create valid recipes based on user-inputted ingredients during intensive competition at MIT
- Deployed website with Heroku, employed MongoDB to store and retrieve user data, and implemented Google OAuth for login
- Produced interactive website with a customizable platformer game auto-generated from ingredients and recipe information

Program in Mathematics for Young Scientists Boston, MA
Hypergraph Narayana and Catalan Numbers 2019 - 2020
- Invented and analyzed hypergraph generalizations of Narayana and Catalan numbers with their q-analogues, coauthoring paper
- Derived major theorems in Computability Theory, Graph Theory, Algebra, and Number Theory via intensive problem sets

Other Selected Projects
- Predicted near-term flu outbreaks with Google Trends and economic data using LSTM networks (Honorable Mention at MSEF)
- Analyzed political sentiment of text, identifying lingual neutrality and polarization (Best Entrepreneurial Hack at Metrohacks III)

Honors and Skills

Awards: American Mathematics Competition Top 500, US Computing Olympiad Gold Division, DECA International-Level Qualifier in Business Finance, US Chemistry Olympiad Nationals Qualifier, National Academic WorldQuest 19th Place

Computer Skills: Java • C++ • React • JQuery • Docker • AWS • SQL • Optimization • Machine Learning • PyTorch • NLP • Unity
Other Skills: Team Coordination • Budget Management • Finance • Number Theory • Probability • Information Theory • Spanish