Geoffrey Wu

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Skills: Python · Java · C/C++ · HTML/CSS/Sass · Javascript/Typescript · Wolfram | **Machine Learning:** Tensorflow · Keras · PyTorch · Pandas | **Web Development:** ReactJS · MongoDB · Express · NodeJS · Pub · Hugo | SQL · Excel

EDUCATION

Columbia University, NY – *B.S. in Computer Science and Mathematics* August 2021 - May 2025

GPA: 4.14/4.00 | Dean's List | Fu Foundation School of Engineering and Applied Science

Coursework: Machine Learning | Artificial Intelligence | Intro to Databases | Advanced Programming | CS Theory | Data Structures | Discrete Math | Fourier Analysis | Modern Analysis 1 | Linear Algebra | Multivariable Calculus

Activities: Quiz Bowl Club – Vice President | Undergraduate Math Society | Youth For Debate – Judge & Coach

WORK EXPERIENCE

Course Assistant, Discrete Mathematics September 2023 - Present

Columbia University — Computer Science Department.

Quantitative Trading Intern, Bala Cynwyd, PA June - August 2023

Susquehanna International Group (SIG).

- Built reinforcement learning-based trading bot to trade under unusual market conditions (BA, GME, SIVB)

Course Assistant, Data Structures September - December 2022

Columbia University — Computer Science Department.

Research Assistant, Columbia University, New York, NY January 2022 - April 2023

Heffner Biomedical Imaging Lab.

- Developed CNN and topological data analyses for preeclampsia detection from retinal fundus images.
- Generated vascular segmentation images using neural networks RV-GAN & spatial-attention U-NET.

Machine Learning Research Intern, Oak Ridge National Lab, Oak Ridge, TN June - August 2022

US Department of Energy — Science Undergraduate Laboratory Internship (SULI) Program.

- Compressed 70,000 2D neutron spectroscopy images using autoencoders written in PyTorch.
- Published into *Machine Learning: Science and Technology* journal as second author here.

PROJECTS

qbreader.org August 2021 - Present

- Built website to read quizbowl questions w/ **JS**; responsive layout & dark mode w/ **CSS** from **Sass** & **Bootstrap**; **custom API** and documentation w/ **Express**, live multiplayer w/ **WebSockets**, searchable **database** w/ **ReactJS**, stateful login system for 900+ users w/ **JWT**, and integrated payment with **Stripe**.
- Serves 500K+ requests to 5000+ unique users/week with an average response time under 10 ms.
- Wrote bash script and regex-based python program to retrieve, parse, and upload 260,000+ questions from 520+ sets to **MongoDB** database, classified using a custom-built **Naive Bayes classifier**.

NSBA May - July 2022

- Built official NSBA Science Bowl competition website with 25 different views—**Bootstrap** & **Javascript** client-side; **ExpressJS** & **Pug** for server-side rendering; and signup/login system with **JWT**.

HONORS AND AWARDS

Awards: 2022 Putnam Math Competition – Top 200 | 2021 International Olympiad on Astronomy and Astrophysics – Gold Medalist | 2019-21 USA Computing Olympiad – Platinum | 3x USA Math Olympiad Qualifier

Scholarships: 2021-25 Fermi Research Alliance Scholarship | 2021-25 National Merit Scholarship