Andrew Zheng

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Summary

- Seeking to apply my research experience in AI/ML and Quantum Computing as well as my extensive math background/coursework to research.

Education

University of Maryland | College Park, MD

M.S. in Computer Science — *Aug 2024 – Expected: May 2026*

B.S. in Computer Science and Mathematics — *Jan 2021 – May 2024*

Skill Highlights

Programming Languages: Python, C, Vim, Bash, SQL, Java
Computer Science: Deep Learning, Computer Vision, Quantum Computing, Cryptography
Mathematics: Linear Algebra, Multi-variable Calculus, Topology, PDEs, Abstract Algebra
Software: Pytorch, Transformers, Pandas
Hobbies: Chess, Ice Hockey, Basketball

Research and Publications

Self-Improvement | *Reinforcement Learning, Monte-Carlo Methods* — Aug 2025 – Current

- Designed and Implemented an efficient Monte-Carlo module for data collection
- Published Code for this project: [Code]

Quantum Simulation | *Quantum Computing, Algorithms* — Jan 2024 – Current

- Implemented general algorithms for computing error bounds of quantum simulation
- Applied package on Pionless-EFTs simulations (code and write-up given upon request)

Noise Cancellation | *Pytorch, Deep Learning* — Jan 2023 - May 2023

- Trained a deep convolutional Neural Network on a large corpus of self-supervised data
- Wrote up experimental results and published code: [Paper] [Code]

Work Experience

REU Intern | University of Maryland, College Park — May 2024 – August 2024

Quantum Computing

- Implemented and proved efficient algorithms for computing trotter error bounds (Code can be made available upon request)

ITS Intern | AARP Washington DC Headquarters — May 2023 – August 2023

Generative AI

- Led project on the deployment of a chat bot for help-desk automation
- Collected data for project using Pandas, Selenium, and Beautifulsoup
- Trained LLMs for deployment using Transformers and Pytorch

Teaching Assistant | University of Maryland, College Park, MD — Jan 2023 – May 2023

CMSC 250: Discrete Structures

- Led a discussion section that went over course material
- Had Office hours and grading duties responsibilities
- Created original discussion slides to complement lecture material: [Link]

Coursework

Completed: Advanced Topics in Quantum Computing (CMSC858Q), Introduction to Quantum Information Processing (CMSC657); Advanced Computer Graphics (MATH740); Abstract Algebra I (MATH600); Capstone in Machine Learning (CMSC673); Advanced Numerical Optimization (CMSC764); Foundations of Deep Learning (CMSC720); Introduction to Compilers (CMSC430); Introduction to Machine Learning (CMSC422); Computer Vision (CMSC426); Introduction to Topology (MATH432); PDE's (MATH462); Transform Methods (MATH464); Advanced Calculus II (MATH411); Lie Algebra (MATH744); Advanced Linear Algebra (MATH405); Computational Methods (AMSC460); Complex Analysis (MATH463); Abstract Algebra (MATH403); Number Theory (MATH406); Introduction to Quantum Computing(CMSC457) Special Topics in Computer Science; Quantum Boot Camp (CMSC488A); Advanced Data Structures (CMSC420); Algorithms (CMSC351); Introduction to Data Science (CMSC320); Applied Probability and Statistics I (STAT400)

Other Experiences

Chess

- Scholastic Maryland State Champion | 2014 - 2017, 2020
- Chess.com: bravehorse
- Represented UMD Chess Team in Pan American Chess Championships| 2021, 2022
- Community Service: Hosted public lessons at local community college, Private tutor

Ice Hockey

- Maryland Student Hockey League (MSHL) scholarship | 2020
- Last Team: Washington Little Caps AAA U18 | 2019 – 2020
- Howard County All-Star 2016-2020, MSHL all-state | 2018 – 2020
- Community Service: Skated with many disabled players, Instructor for Asian Ice Hockey Camp