Andy Chen

Mathematics & Computer Science · University of Michigan
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Education

- **University of Michigan** — Ann Arbor, MI
  B.A. Mathematics, B.S.E. Computer Science · GPA 3.83/4.00 — *Aug. 2021 – May 2025*
  - Fall 2024: Distributed Systems, Applied Regression Analysis, Machine Learning Research Experience, Large Language Models (graduate), Generative Syntax
  - Math: Complex Analysis (graduate), Honors Abstract Algebra I/II, Algebraic Combinatorics, Probability Theory, Number Theory, Honors Analysis in $\mathbb{R}^n$, Honors Linear Algebra, Intro to Analysis
  - CS: Web Systems, Operating Systems, Intro to Machine Learning, Introduction to Algorithms, Data Structures and Algorithms, Programming Languages, Computer Organization, Foundations of Computer Science
  - *Activities & Honors:* Math DRP (Fourier analysis for equidistribution), Michigan Investment Group (quant side), Putnam Competition Score: 21
- **Stuyvesant High School** — New York, NY
  Unweighted GPA 97.41/100 · SAT 1590/1600 — *Sep. 2017 – June 2021*
  - AIME Qualifier; US National Chemistry Olympiad Top 200, Columbia University Science Honors Program

Experience

- **Michigan Mathematics** — Ann Arbor, MI
  Researcher — *May 2024 – July 2024, May 2023 – August 2023*
  - Ongoing research with Prof. Daniel Forger on modeling systems of noisy coupled oscillators using a Gaussian particle method. *Manuscript in preparation.*
  - Optimized parallelized speedups for C++ and Python implementations of said method on the Great Lakes computing cluster, such as for the Hodgkin-Huxley model of neuronal action propagation.
  - Described a new mathematical method using a Gaussian convolution of particles and phase reduction to simplify population representations on the limit cycles of systems with attractive limit cycles.
- **Nokia Deepfield** — Ann Arbor, MI
  Software Engineer Intern, Product Base — *June 2022 – Aug. 2022*
  - Backend development in Python, C, and SQL for enterprise network traffic monitoring and security (Spectrum, Comcast) using Apache Impala/Kafka.
  - Created a collection system to pipe PostgreSQL data onto InfluxDB for backend monitoring of query and lock request metrics on Grafana.
- **Jane Street** — New York, NY
  First-Year Trading and Technology Program — *March 2022*
  - Selective quantitative finance program for first-year undergraduates across the US.
  - Wrote a Python bot to arbitrage ETFs for a trading competition, placing 5th out of 20 teams.

Projects

- **Virtual Memory Pager**: C++ implementation of a virtual page manager for application processes.
- **Hodgkin-Huxley Neuronal Population Visualization**: Python implementation of a particle method simulation for the neuronal Hodgkin-Huxley equations, with real-time visualization.
- **Thread Library**: C++ implementation of a thread manager with functionality for mutexes and condition variables.

Technical Skills

Languages: Python, C++, C, CUDA, JavaScript, TypeScript, SQL, MATLAB, Go/Golang, Rust, R, Java, LaTeX
Libraries: Bash, pandas, NumPy, scipy, scikit-learn, PyTorch, Flask, React, Node.js; C++: Boost, Eigen
Tools: Linux, Git, Docker, Jira Confluence