Anthony Wong

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EDUCATION

Brown University, Sc.B. Applied Math-Computer Science, A.B. Math; GPA: *4.0/4.0*   *Expected Graduation: May 2026*
Collegiate School: SAT: 1570; National Merit Scholar

Coursework: *Deep Learning, *Optimization, *Math Stat., *Robust ML, Real Analysis, Manifolds, Complex Analysis, Stochastic Calc, Abstract Alg., Honors Stat, Honors Linear Algebra, PDE, Data Structures and Algorithms, Comp. Systems, OOP, Intro Stat'

(* denotes Graduate, ' denotes TA)

COMPETITIONS AND AWARDS

- AMC Distinguished Honor Roll; Scored 135 — **ranked 92nd/19,000**
- AIME 3x Qualifier; Scored 9 — **ranked 215th/6,400**, 94% among qualifiers
- Chess ELO of 1970 — **ranked top 100** US for my age group 2013-2022
- Regeneron Science Talent Search (STS) Semifinalist

TECHNICAL EXPERIENCE

Software Engineering Intern - Capital One   Philadelphia, PA | *June 2024 - Aug 2024*
- Developed data analysis + visualization feature to automate risk detection, increasing coverage by over **500x**
- ETL with mySQL queries on **Snowflake** and **AWS RDS** databases, optimized performance with Redis caching
- Built microservice APIs with **AWS Fargate**, graphs and UI dashboard with **Angular/Typescript**
- Implemented ESD tests, Bayesian change point detection, and ARIMA models on time series data to flag outlier records

Software Engineer Intern - Regeneron   Tarrytown, NY | *May 2023 - Aug 2023*
- Spearheaded use of partitions, caches, and join strategies to optimize parallelism, increased pipeline speeds by 500%
- Built ETL pipelines with SQL, structuring data from data lake **(AWS S3)** to warehouse **(Redshift)**
- Created backend databases ingesting petabytes of data from R&D teams — handled JSON, tabular, and image data
- Detected and traced data inconsistency w/ **Pyspark + Kafka in EMR**; CI/CD deployment in **Apache Airflow + Jenkins**

Machine Learning Intern - NYU Langone, Epidemiology   New York, NY | *May 2022 – Sep 2022*
- Ran multinomial **logistic + linear regression models**, ANOVA, and Chi-squared analyses
- Markov Chain Monte Carlo methods for data imputation; inverse probability weighting for sensitivity analysis
- Paper currently under review — found that exercise levels predicted memory loss 30 years later

Embedded Systems Developer - Brown Space Engineering   Providence, RI | *Jan 2023 – May 2023*
- Programming with threads and embedded C; low-latency programs for FreeRTOS on SAMD21 microcontroller
- Part of project to build custom watchdog for a NASA PVDX satellite operating system

Discover Citadel Participant   *Mar 2024*

RESEARCH EXPERIENCE

Math Research   Providence, RI | *Jan 2024 - Present*
- Working on **stochastic processes** under the guidance of Prof. Oanh Nguyen
- Used and developed tools/lemmas from real analysis, probability, and large deviation theory
- Proved asymptotics of the SIS contact process on random graphs, answering classical questions from **statistical physics**

Research Assistant - Brown Database Group   Providence, RI | *Jan 2023 - Present*
- Training reinforcement learners **(Open AI PPO, MuZero, and Q-learning)** to beat default Kubernetes/Flink autoscalers
- Working with **Apache Flink, Kubernetes, and Docker images** to test various workloads and query topologies

PROJECTS

Meta Hacker Cup + Google Code Jam
- Meta Hacker Cup Rd. 2 Qualifier — finished top 100 US in Rds. 1 & 2
- Google Code Jam Rd. 2 Qualifier — finished top 10% worldwide in Rd. 2

IMC Algo Trading Competition
- Implemented market making, pairs trading, and mean reversion algorithms; **finished top 100 US, top 2% overall**

Statistical Pipeline for Drug Discovery
- Developed pipeline in Python and R to analyze genomic sequencing data; project selected for STS
- Dimensionality reduction — PCA, clustering. Visualization — heatmaps, volcano plots, and dendrograms

SKILLS

Communication: Accomplished Writer (Won a Scholastic Writing Gold Key), Fluent in Mandarin, Basic Spanish
Programming Languages: Proficient in Python, C, C++, SQL, Go, HTML, Typescript, CSS, Java (Object-Oriented), Matlab and R
Frameworks: AWS, Azure, Flink, Kafka, Spark, MapReduce, Hadoop, NodeJS, Docker, Kubernetes, GPU, Cuda
Libraries: Pandas, Pytorch, Scipy, Statsmodels, Tensorflow, SkLearn, PySpark, Linux, MongoDB, Stable Baselines, AI Gym