WILLIAM CHEN

wc187@duke.edu — (919) 771-5375 — linkedin.com/in/WillChen

EDUCATION

Duke University Durham, NC
Masters in Computer Science *Sep 2026 – May 2027*

Duke University Durham, NC
Bachelor of Arts in Mathematics and Computer Science, GPA: 3.85/4 *Aug. 2022 – May 2026*

- **Honors:** IMC Prosperity 2025 Trading Competition, (Top 10 US); Putnam Competition, Top 542 (27 points, 2023); AIME Qualifier (2020, 2021, 2022), USACO Gold (2022)
- **Relevant Coursework (* denotes graduate):** Measure Theory*, Fundamentals of Reinforcement Learning*, Theory and Algorithms of Machine Learning*, Analysis 1*, Numerical Analysis*, Stochastic Calculus*, Deep Learning*, Theory of Deep Learning*, Design and Analysis of Algorithms, Bayesian Statistics, Regression Analysis

WORK/RESEARCH EXPERIENCE

Robotics Research Intern Sep 2024 – Present
Duke University, Computer Science Department *Durham, NC*

- Research under Professor Ron Parr on learning effective state and action representations for linear models in reinforcement learning.
- Designed pipeline for efficient feature learning and ran experiments in Atari and Brax environments with JAX
- Proved that our algorithm achieves the regret lower bound of $\Theta(\sqrt{\mathcal{SA}} \cdot \sqrt{T})$. **Preprint in preparation for AISTATS**

Operations and Statistics Research Intern Jan 2025 – Present
University of North Carolina, Operations Research Department *Chapel Hill, NC*

- Advised by Professors Mo Liu and Weitong Zhang on tractable, provable linear programs for reinforcement learning. **In preparation for submission to Operations Research Journal.**
- Derived guarentees when online algorithms can **achieve a fast learning rate** $O(1/n)$ **versus the standard rate** $\mathbf{O(1/\sqrt{n})}$, where n is sample size.

Undergraduate Research Assistant May 2023 – Sep 2023
Duke University, Math Department *Durham, NC*

- Analyzed the convergence properties of stochastic algorithms through a dynamical stability lens.
- Derived stochastic differential equations to model and explain the behavior of RMSprop and Adagrad.
- Developed experimental packages to validate theoretical findings and presented research at Duke's Annual Undergraduate Research Session (see poster) and published in Duke's Undergraduate Research Journal (preprint)

Data Science Intern Jun 2022 – Aug 2023
VR Business Brokers *Raleigh, NC*

- Engineered an ensemble of regularized linear models and gradient boosted trees to generate business valuations
- Deployed model used in **over 15 acquisitions by predicting valuations within 90% confidence interval.**
- **Developed and maintained a NoSQL database schema** in MongoDB for historical business financials and transaction data used to automate the generation of Confidential Business Reviews for prospective buyers.

Math and CS Teaching Assistant Jun 2022 – Aug 2023
Duke University *Durham, NC*

- UTA for MATH 230: **Probability (Spring 2024)** and **CS 330: Advanced Algorithms (Spring 2025, Fall 2025).**
- Led weekly recitation sections, held office hours to assist students with coursework, and graded assignments.

PROJECTS

Stable GANs | *Pytorch, CUDA* | Github

- Implemented and benchmarked GANS architectures to analyze training stability on large-scale anime face dataset
- Presented at Duke's AI/ML Workshop Poster Session Report Link

Aesop AI | *React Native, Mongoose, Express, MongoDB, Azure* | Links: Devpost | Microsoft Blog

- Developed an interactive mobile application that generates visual storybooks with AI-powered voice narration.
- Achieved First Place at Duke university's annual hackathon and Semifinalist @ Microsoft's Imagine Cup Hackathon

RateMyPath | *Angular, Node, PostgreSQL, RESTful APIs* | *Github*

- Created a web application that integrates data from DukeHub API and scraped information from RateMyProfessor.
- Created a database of Duke courses with official information of student feedback from course evaluations.