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), Microsoft Imagine Cup Semifinalist (Top 20 Global)
- **Teacher Assiantant work:** CS330: Design and Analysis of Algorithms TA (Spring 2025, Fall 2025) and MATH230: Probability Theory TA (Fall 2024)

WORK/RESEARCH EXPERIENCE

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

- Research under Professor Ron Parr on learning 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.

Microsoft Imagine Cup Semifinalist Jan 2024 – May 2024
Microsoft *Richmond, WA*

- Secured a Semifinalist position (Top 2% out of 984 teams), allowing us to work under Microsft mentorship
- Engineered the end-to-end system using React Native, Node.js, and MongoDB, integrating Azure OpenAI for generative narration and Azure Cognitive Services for text-to-speech.
- Designed a low-latency media pipeline, implementing WebSocket endpoints for chunked TTS audio streaming to minimize perceived latency and enhance user experience on mobile clients.
- Automated CI/CD and deployment workflow for backend services using Docker containers and Azure App Service

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.

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

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.