Austin Jiang

a68jiang@uwaterloo.ca austinjiang.com AustinBoyuJiang austin-boyu-jiang

Experience

Undergraduate Research Assistant, 09/2025 – Present
University of Waterloo – Supervisors: Prof. Trevor Brown & Prof. Hong Zhang Waterloo, Canada

- **GPU Range Query Dictionary (Prof. Trevor Brown):** Extended Verlib (PPoPP'24) with **GPU-accelerated data structures** for **CPU-GPU communication**. Implemented **trees**, **hash tables**, and **lists** with **lock-free updates** across **multicore CPUs** and **NVIDIA GPUs**. Built a benchmarking framework (Python + Bash) for reproducible scalability experiments.
- **Model Serving Systems for Generative AI (equivalent to CS 854, Prof. Hong Zhang):** Conduct independent research on **distributed serving infra** for GenAI. Survey recent systems literature and formulate a project topic addressing challenges such as batching, memory/cache management, and scheduling.

Research Engineer (WELP '24 '25), *Wolfram Research* 06/2024 – 05/2026
Remote

- Build **parallel systems** for cellular automata with **multicore CPUs** in Mathematica, including **domain partition**, **halo-region synchronization**, and **load balancing**
- Led a team project on cellular automata–based 3D printing infill, handling algorithms including 3D model voxelization and **topological shape optimization**
- Designed **benchmark experiments** and authored a **research paper** presenting throughput, scalability, and efficiency results
- Published results on Wolfram Community with 10k+ views, and scheduled to present at the Wolfram Technology Conference 2025

Research Fellow (WSRP '24 '25), *Wolfram Research* 06/2024 – 07/2025
Boston, USA

- Conducted two summers of theoretical CS research in **lambda calculus** and **algorithm design**, designing constructive algorithms and formal systems.
- Published open-source functions in the Wolfram Function Repository with **full documentation**, widely used by the research community.
- Collaborated with Wolfram researchers on **symbolic computation tools**, including polygonal tiling generation and **discrete neural networks**.
- Acknowledged alongside a Turing Award laureate and recognized as a *"21st Century λ-Combinator-ist"* by Stephen Wolfram

Contest Director & Problem Setter, *DMOJ: Modern Online Judge* 06/2022 – Present
Remote

- Directed **3 national-level coding contests** on Canada's leading programming platform with **1000+ participants**.
- Designed **20+ algorithmic problems** (**data structures**, **DP**, **Ad hoc**, **graph theory**, etc.) with full test generation and evaluation infrastructure (USACO Gold to IOI level).
- Led a 7-member remote team from top universities to deliver contests.

Co-Founder & Chief Executive Officer, *Happy Hackers Foundation* 08/2023 – 01/2025
Vancouver, Canada

- Co-founded a nonprofit promoting inclusive STEM education; organized 5 hackathons (600+ participants, 28 countries) and raised $60K sponsorships

Projects

Recap 07/2025

- Won **1st place** (Multimodal Track, 800 participants) at **Adventure X**, China's largest hackathon.
- Built a backend with **FastAPI**, **WebSockets**, **SQL**, deployed on **CentOS VPS with Nginx**.
- Designed a **graph-based knowledge model** with **memory-decay algorithms**, extended into an educational system using **Google Street View**, **TEN Framework**, and multimodal voice interaction.

Zebra Giraffe Swap 06/2025

- Built a concept-swapping solution (giraffe ↔ zebra) via **selective UNet training**.
- Implemented with **PyTorch** and **Hugging Face Diffusers/Transformers**.
- Designed a **scalable preprocessing pipeline** on the COCO 2017 dataset.

ArtifAI 03/2024

- Developed a system to distinguish AI-generated and human-made artworks, addressing ethical and copyright challenges in generative AI.
- Built and deployed the **backend with FastAPI** on a personal **VPS (CentOS + Nginx + SSL)**, integrating **GPT API** as an assistant for copyright queries and creator support.
- Optimized training to handle **memory-intensive models**. Scaled the system to **4,900+ uses by 200+ users**, ensuring backend reliability\transparency in digital art.

Honours and Awards

Canadian Computing Olympiad 2024 & 2025 Silver Medalist, 05/2025
University of Waterloo
Placed **top 5 and 6 nationally** among the top 20 finalists selected for Canada's national computing olympiad for the IOI selection.

International Olympiad in Artificial Intelligence (IOAI) Team Canada Selection Finalist, *IOAI-Canada* 06/2025

Mathematics National Scholarship Recipient ($25,000), *University of Waterloo* 04/2025
Awarded to ~10 students for outstanding academic performance in mathematics and computer science.

ACSL Senior 2024 Global Finals Gold Medalist, *American Computer Science League* 04/2024
9th place worldwide

USACO Platinum Division, *USA Computing Olympiad* 01/2024

Education

Bachelor of Computer Science, *University of Waterloo* 09/2025 – 04/2030
Advanced Courses Stream (CS 145, CS 146, MATH 145, MATH 146, MATH 147, MATH 148) Waterloo, ON, Canada

International Baccalaureate Diploma, *West Vancouver Secondary School* 09/2020 – 06/2025
Vancouver, BC, Canada