

# Angela Qian

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## EDUCATION

Purdue University | B.S. in Computer Science and Mathematics

Aug 2023 – May 2027

## EXPERIENCE

**Undergraduate Research Assistant** | Advisor: Joseph Campbell

Feb 2025 – Present

- Currently leading a project developing hierarchical world models in model-based reinforcement learning
- Worked on a team to design an LLM-based agent with Theory of Mind to play the social deduction game Avalon
- Conducted participant studies with 45+ volunteers and applied statistical analysis to evaluate model performance
- Developed and evaluated methods for hallucination detection with 95% agreement with human annotations
- Drafted and co-authored a paper in submission to ACL Rolling Review

**Software Engineering Intern** | Cepton Technologies Inc.

May 2025 – Aug 2025

- Performed real-time foreground-background segmentation masking from depth and reflectivity maps by engineering a computer vision model based on U-Net segmentation, which has been integrated into the production system
- Built in Rust a real-time object tracking pipeline using LiDAR-generated point cloud data on a per-frame basis
- Developed a 2D rectangle selection tool for a 3D point cloud viewer, enabling users to select points from any camera perspective and display their coordinates dynamically by transforming 3D point data using projection matrices

**Teaching Assistant** | Purdue University Department of Computer Science

Jan 2025 – Present

- CS 381: Analysis of Algorithms, CS 211/311: Competitive Programming, CS 182: Discrete Mathematics
- Led weekly recitation sessions, teaching problem-solving techniques and reinforcing theory taught in class
- Held weekly office hours to clarify course material and guide students through homework challenges

**Undergraduate Researcher** | Purdue University Vertically Integrated Projects

Aug 2024 – Dec 2024

- Detected image blur with custom program using convolution, the Laplacian filter, and the Sobel filter
- Generated clear, focused photos from blurred images with algorithms based on Fourier Transforms
- Presented in Purdue's 2024 Fall Undergraduate Research Exposition

**Competition Mathematics Instructor** | AlphaStar Academy

July 2024 – Aug 2024

- Delivered lectures to 50+ students on Algebra, Number Theory, Geometry, and Counting/Probability
- Held review sessions with practice problems to prepare students for the AMC10, AMC12, and AIME exams
- Presented feedback to students and parents, highlighting focus areas for continued academic growth

## PUBLICATIONS

**Bayesian Social Deduction with Graph-Informed Language Models**

S. Rahimirad, G. Gergerli, L. Romero, **A. Qian**, M. L. Olson, S. Stepputtis, J. Campbell. *NeurIPS Workshop on Efficient Reasoning* (2025), *Full version Under Review*

## PROJECTS

**2048 AI Player** | PyTorch, TorchRL, Jupyter Notebook, JavaScript

June 2025 – Present

- Developed a neural network to play 2048 using imitation learning trained on a custom dataset of my own gameplay
- Authored and published a research-paper-styled [writeup](#) in SIGBOVIK-inspired journal, [SIGHORSE](#)
- Currently extending the project by implementing a Deep Q-Network for reinforcement learning to fine-tune strategic decision-making through self-play

**ScribbleScore Handwriting Improvement** | Python, OpenCV, Numpy, React, Flask

Feb 2025

- Worked in a group of 4 over the course of a 36-hour hackathon (Boilermake XII)
- Developed a web app that scans handwriting from images, evaluates it from 0–100, and provides feedback
- Implemented Sobel edge detection, line of best fit analysis to assess writing straightness, extracting text from images, and computing score

## SKILLS

**Languages:** English (Native), Mandarin Chinese (Native)

**Programming:** Python, Rust, C/C++, JavaScript, Typescript, x86\_64 Assembly, SQL, MongoDB, HTML, CSS, Java

**Developer Tools:** Git, GitHub, Jupyter Notebook, Figma, Linux, Overleaf, React, Node, Bash, LaTeX, VIM, FFmpeg, MySQL, MongoDB, Neo4J, Next.js, TailwindCSS, VS Code, Eclipse, Inkscape

**Libraries:** Matplotlib, OpenCV, PyTorch, TorchVision, Pandas, NumPy