

RICHARD GUO

📞 949-508-5168 ✉ richardguo246@gmail.com [linkedin.com/in/richardguo24](https://www.linkedin.com/in/richardguo24) github.com/RichardGuo24

EDUCATION

Columbia University

New York City, NY

Bachelor of Science in Computer Science; GPA: 4.0/4.0

Expected May 2027

Coursework: Fundamentals of Computer Systems, Advanced Programming, Introduction to Databases, Data Structures & Algorithms, Discrete Math, Multivariable Calculus, Linear Algebra, Probability Theory.

TECHNICAL SKILLS

Languages/Databases: Python, Java, C#, C/C++, JavaScript, HTML, CSS, SQLite

Libraries/Frameworks: PyTorch, NumPy, Pandas, Matplotlib, Flask, Express.js, React, Unity

Tools: Git, VS Code, Visual Studio, IntelliJ, PyCharm

EXPERIENCE

Columbia University – Creative Machines Lab

New York, NY

Machine Learning Research Assistant

Sept. 2025 – Present

- Prototyping a PyTorch system where a supervisory neural network estimates another model's confidence from hidden activations to improve reliability under uncertainty.

Pennsylvania State University

University Park, PA

Natural Language Processing Research Assistant

June 2025 – August 2025

- Fine-tuned transformer models on 50M+ tokens in PyTorch with the TinyStories dataset, developing experiments to test how changing hyperparameters affected output quality under fixed compute budgets.
- Reduced evaluation time by 70% by prompt-engineering a GPT-based rubric to grade 1,000+ outputs, then validating with statistical tests and visualizations in Matplotlib.
- Uncovered a log-shaped relationship between block size and output quality that guided future experiment design.

Jane Street Capital

New York, NY

Academy of Math and Programming Scholar

June 2024 – Aug. 2024

- Completed a curriculum in computer science and math under Jane Street traders and university professors, implementing efficient algorithms for puzzles and strategy games.
- Built a Camel Up expected value bot using probability distributions of dice rolls to optimize betting strategy, increasing win rate by 25–40% over baseline play.
- Developed Python trading bots, simulating live order routing and market interactions; implemented pennyng strategies and fair-price calculations to finish Top 10 in Jane Street's Electronic Trading Competition.

PROJECTS

Wordle Solver & Practice Platform | Python, Flask, React, Tailwind

August 2025

- Designed a Wordle solver that achieved 100% accuracy on a 2,300-word pool, averaging 3.495 guesses with combinatorial search and entropy heuristics in Python.
- Integrated solver into a full-stack practice platform (Flask REST API + React) supporting interactive play, solver-assisted guessing, and competitive player-vs-bot matches.

Protein Pilot | React, JavaScript, HTML/CSS

August 2025

- Built and deployed a full-stack recipe assistant that generated personalized high-protein meal plans with React and Vercel; tested with 100+ users in a structured beta and achieved 90% satisfaction on usability and recipe quality.

Pokestarter | Node.js, Express, OpenAI API, JavaScript, HTML/CSS

April 2025

- Developed a Pokémon card recommendation app for beginners, combining GPT-4o with the Pokémon TCG API to give budget-friendly collecting advice.
- Tested with 50+ participants at UCSD DiamondHacks; 94% reported the app made starting Pokémon collecting easier and more affordable.

LEADERSHIP / OTHER WORK

Lead Math Instructor

August 2024 – May 2025

Kumon

New York, NY

- Taught 30+ K–12 students (arithmetic → calculus); trained 2 junior instructors; contributed to 4.8-star Google rating.
- Designed engagement strategy (assignment racing) that cut average work time from 45 minutes to 20 minutes.