Richard Guo

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Education

Columbia University **New York City, NY**
Bachelor of Science in Computer Science; Minor in Applied Mathematics, GPA: 4.0 *Expected May 2028*

Irvine Valley College **Irvine, CA**
Associate of Science in Computer Science, GPA: 4.0 *Aug. 2024 – 2025*

Relevant Coursework

- Data Structures
- Discrete Math
- Computer Systems
- Multivariable Calc
- Linear Algebra
- Intro to CS Java
- C Programming
- C++ Programming

Experience

Pennsylvania State University **June. 2025 – Aug. 2025**
Natural Language Processing Research Assistant (Remote) *University Park, PA*

- Trained a Small Language Model (SLM) on the TinyStories dataset and benchmarked against an n-gram baseline, analyzing efficiency and quality across 100,000+ tokens.
- Built evaluation pipelines in PyTorch, applying two-sample t-tests and scoring rubrics to assess grammar, consistency, creativity, and plot structure on 500+ generated dialogues.
- Quantified tradeoffs in inference speed, memory usage, and MFU (Model FLOPs Utilization), presenting findings at college's research symposium recognized as a Best Poster Presentation.

Jane Street Capital **June 2024 – Aug. 2024**
Academy of Math and Programming Scholar *New York City, NY*

- Completed a rigorous curriculum in computer science, combinatorics, and number theory, applying concepts to implement efficient algorithms for puzzles and game projects.
- Built AI game models, including a Wordle solver and a Camel Up bot with an EV calculator that improved win rate by 25–30% vs baseline strategies.
- Applied statistical reasoning to achieve a Top 3 finish in Estimathon, and built stock-trading bots that earned a Top 10 placement in the Jane Street Electronic Trading Competition.

Projects

Protein Pilot | *React, JavaScript, HTML/CSS, Node.js* **August 2025**

- Designed and deployed a full-stack AI web app generating personalized high-protein recipes, tested with 10+ users and achieving 90% satisfaction in recipe accuracy.
- Built a scalable Vercel serverless backend handling 100+ concurrent requests while securely managing API keys and environment variables.
- Integrated Anthropic Claude to deliver context-aware recipes, building around protein detection from user inputs.

Wordle AI Solver | *Python, Flask* **July 2024**

- Developed a Python-based AI Wordle solver achieving 98.5% accuracy in under 4 guesses on average by implementing combinatorial search and pruning algorithms.
- Engineered a full-stack practice platform with React frontend and Flask backend, enabling interactive gameplay and automated bot solutions.
- Optimized solver efficiency by caching guess–feedback pairs, reducing computation time by 70% across repeated runs.

Technical Skills

Languages/Frameworks: Java, Python, C/C++, SQLite, JavaScript, HTML/CSS, React, Flask
Developer Tools: Git, VS Code, Visual Studio, PyCharm, IntelliJ, Unity
Libraries: pyTorch, NumPy, Matplotlib

Leadership / Other Work

Kumon **Feb. 2024 – May. 2025**
Lead Math Instructor *Irvine, CA*

- Taught 30+ K–12 students in mathematics, ranging from basic arithmetic to advanced calculus.
- Supervised and trained a team of 2 junior instructors, ensuring lesson consistency and boosting overall center efficiency.
- Contributed to maintaining a 4.8 Google Review rating, reflecting high student and parent satisfaction during tenure.