Yu You (Ryan) Chen

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Education

University of Southern California
Master's of Science in Computer Science — Aug 2025 - Expected May 2027

University of California, San Diego
Bachelor's of Science in Mathematics-Computer Science — Sep 2021 - Jun 2025

- GPA: 3.86/4.0
- **Coursework:** Advanced Software Engineering, Design and Analysis of Algorithms, Advanced Data Structures, Operating Systems, Computer Security, Databases, Machine Learning Algorithms, AI Algorithms, Deep Reinforcement Learning, NLP

Experience

Lead Software Engineer, IEEE Eta Kappa Nu (HKN) Honors Society — Jan 2023 - Jun 2025

- Lead an 8-person development team by delegating tasks, setting sprint goals, and ensuring timely delivery of key software projects.
- Contact other organization branches to gather requirements and translate needs into actionable development plans.
- Facilitate regular standups, code reviews, and retrospectives to maintain high development velocity and code quality.
- Oversee the full project lifecycle—from planning and design through deployment—while ensuring alignment with user needs.

Software Engineer Intern, Project Falcon — Jun 2024 - Dec 2024

- Design and develop a *chatbot prototype* to analyze legal documents using *OpenAI's ChatGPT-3.5-turbo* and *Langchain*.
- Fine-tune *Dolly 2.0* with synthetic data on *Amazon EC2*, optimizing *large-scale models* for complex document processing tasks.
- Build robust document ingestion and retrieval systems using *Pinecone*, improving overall *system scalability* for high-demand uses.

CS Instructional Assistant, UCSD Computer Science and Engineering Department — Mar 2024 - Dec 2024

- Provide assistance to 460+ students in *Advanced Data Structures*, focusing on *code optimization* and *debugging techniques*.
- Collaborate with faculty to support educational initiatives while enhancing student engagement and performance.

Projects

RL Autonomous Vehicle | Repo Link — Apr 2025 - Jun 2025

- Designed a custom wrapper for **highway-env**'s intersection scenario to implement a tailored reward structure.
- Integrated Key reward components including collision avoidance, safety distance maintenance, and route adherence.
- Trained and evaluated multiple **RL algorithms** (DQN, REINFORCE, A2C, SAC, PPO) for performance benchmarking.
- Achieved collision rate of **0.31** and arrival rate of **0.57** within just **200k training steps**.

HKN Member Portal | Portal Link | Repo Link — Jul 2023 - Jun 2025

- Develop a full-stack membership system using *Django*, *Svelte*, *JavaScript*, and *AWS EC2* to support HKN's induction workflows.
- Implement secure authentication, role-based access, and dynamic user dashboards for 1000+ active users.
- Architect a microservice-based backend and integrated deployment pipelines for scalable, reliable performance.

Personal TA | Repo Link — Feb 2025 - Mar 2025

- Designed and implemented a personal AI-powered teaching assistant using Retrieval-Augmented Generation (RAG), delivering context-aware, interactive tutoring support with an average question-to-answer time of 3.7 seconds through Gemini API.
- Developed a retrieval pipeline with Qdrant Cloud and embedding models to enhance context search, achieving a lookup speed of 3,007 chars/s for hybrid queries.
- Integrated a pre-trained LLM to generate accurate, structured explanations based on retrieved course materials.
- Optimized document processing, achieving an average speed of 1,105.71 chars/s for 486,966 characters across 17 slide decks.

AI for NYT Connections | Repo Link — Feb 2025 - Mar 2025

- Built AI agents to solve *The New York Times Connections* game using *Sentence-BERT clustering*, *Transformer models*, and *REINFORCE*-based reinforcement learning.
- Designed and evaluated strategies by comparing agent performance to a random-guessing baseline.
- Assessed results with metrics including average guesses per game and Jaccard similarity.

RL-Based Stock Trading Agents | Repo Link — Feb 2025 - Mar 2025

- Built a custom *Gymnasium environment* to evaluate *reinforcement learning agents* on stock trading tasks using real-world data.
- Implemented and trained *Q-Learning*, *REINFORCE*, and *Advantage Actor-Critic (A2C)* algorithms on Yahoo Finance data (2014–2024).
- Assessed agent performance using return percentage, Sharpe ratio, and maximum drawdown.

Skills

Programming Languages: Python, Java, C, C++, HTML, CSS, JavaScript, SQL, MATLAB

Tools & Technologies: Git, GitHub, GitHub Actions CI, GitHub Project, JUnit, Arduino, Android Studio, Android

Frameworks & Libraries: PyTorch, HuggingFace, Numpy, Pandas, SKLearn, Svelte, Django