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, 3.86   Sep 2021 - Jun 2025

Experience

Lead Software Engineer, IEEE Eta Kappa Nu (HKN) Honors Society   Jan 2023 - Jun 2025
- Led an 8-person development team by delegating tasks, setting sprint goals, and ensuring timely delivery of key software projects.
- Contacted other organization branches to gather requirements and translate needs into actionable development plans.
- Facilitated regular standups, code reviews, and retrospectives to maintain high development velocity and code quality.
- Oversaw 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
- Served as the primary software engineer at a seed-stage LegalTech startup, producing a functional pipeline within 4 weeks.
- Designed and developed a *chatbot prototype* to analyze legal documents using *OpenAI's ChatGPT-3.5-turbo* and *Langchain*.
- Fine-tuned *Dolly 2.0* with synthetic data on *Amazon EC2*, optimizing *large-scale models* for complex document processing tasks.
- Built 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
- Provided assistance to 460+ students in *Advanced Data Structures*, focusing on *code optimization* and *debugging techniques*.
- Collaborated 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
- Developed a full-stack membership system using *Django*, *Svelte*, *JavaScript*, and *AWS EC2* to support HKN's induction workflows.
- Implemented secure authentication, role-based access, and dynamic user dashboards for 1000+ active users.
- Architected 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

Front End | JavaScript, HTML, CSS, Svelte, Next.js, React
Back End | Python, Django, Java, SQL, SQLite, C, C++
Testing/Deployment | GitHub Actions CI, JUnit, AWS:EC2
Developer Tools | Git, PyTorch, HuggingFace, Numpy, Pandas, scikit-learn, npm, Android Studio, Arduino, MATLAB, Agile Methodology