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
- Directed an 8-person team to complete 3 full-cycle projects on time and reduce delivery delays by $\sim$30% compared to prior teams.
- Consolidated requirements from 5+ organization branches, enabling feature adoption organization-wide with 1000+ users.
- Increased team productivity by $\sim$50% through structured sprint planning, standups, and code reviews.
- Oversaw planning to deployment, launching software that cut manual induction workflows from hours to <5 minutes.

Software Engineer Intern, Project Falcon   Jun 2024 - Dec 2024
- Built the company's first production-ready pipeline in 4 weeks, accelerating legal document intake by $\sim$60%.
- Prototyped an LLM-powered legal chatbot that processed questions $100\times$ faster than manual review.
- Fine-tuned Dolly 2.0 on **AWS EC2**, boosting model accuracy on domain-specific tasks by an estimated 10–20%.
- Designed **Pinecone**-backed retrieval system supporting 10k+ document embeddings, achieving sub-second retrieval.

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

Doodle Docs - Real-Time Collaborative Editor (*Next.js, React, Socket.IO, Redis, PostgreSQL*) | Repo Link   Aug 2025 - Present
- Built a Google Docs-style real-time editor with **Next.js**, **React**, and **Quill.js**, enabling concurrent users with <150ms update latency.
- Deployed **Redis**-backed socket layer enabling 99.9% conflict-free synchronization during collaborative edits.
- Integrated **PostgreSQL** to persist documents, supporting 100+ version histories without data corruption.
- Implemented operational transformation to reduce merge errors by $\sim$90% compared to naive delta merges.

RL Autonomous Vehicle (*Python, highway-env, Gym, stable-baselines3*) | Repo Link   Apr 2025 - Jun 2025
- Customized **highway-env** for intersection driving, achieving collision rate of 0.31 and arrival rate of 0.57 in 200k training steps.
- Benchmarked 5 **RL algorithms** (DQN, REINFORCE, A2C, SAC, PPO); PPO achieved the best overall performance, reducing collision rate by 10% while ensuring an arrival rate of $\sim$15% higher when compared to the average of all other models.
- Integrated key reward components including collision avoidance, safety distance maintenance, and route adherence.
- Reduced simulation runtime by $\sim$70% through optimized reward shaping and environment wrappers.

HKN Member Portal (*Django, SQLite, Svelte, TailwindCSS*) | Portal Link | Repo Link   Jul 2023 - Jun 2025
- Delivered full-stack membership system serving 1,000+ active users with 99.5% uptime.
- Implemented secure authentication and dashboards, reducing manual onboarding time from 3 hours to <15 minutes per candidate.
- Migrated backend to microservices and CI/CD pipelines, cutting deployment time from 15 minutes to seconds.

Personal TA (*Python, Qdrant Cloud, Gradio*) | 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, achieving a lookup speed of 3,007 chars/s.
- 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.

RL-Based Stock Trading Agents (*Python, Gymnasium, Yahoo Finance API*) | Repo Link   Feb 2025 - Mar 2025
- Designed Gymnasium environment and trained Q-Learning, REINFORCE, and A2C agents on 10 years of Yahoo Finance data.
- Benchmarked RL agents, with top-performing models achieving Sharpe ratio of $\sim$1.4 and positive returns vs baseline S&P 500.
- Validated models with metrics including max drawdown, highlighting risk-adjusted returns for real-world viability.

Skills

Languages | Python, Java, C, C++, JavaScript, SQL
Front End | React, Next.js, Svelte, HTML, CSS, TailwindCSS
Back End & Databases | Django, PostgreSQL, SQLite
ML & AI | PyTorch, HuggingFace, scikit-learn, Reinforcement Learning, RAG, LLMs
Tools & Deployment | Git, GitHub Action CI, AWS EC2, Docker, npm, Agile, JUnit