

Yu You (Ryan) Chen

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Education

University of Southern California

Master of Science in Computer Science

Aug 2025 - Present

University of California, San Diego

Bachelor 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 ~30% compared to prior teams
- Consolidated requirements from 5+ organization branches, enabling feature adoption organization-wide with 1000+ users
- Increased team productivity by ~50% through structured sprint planning, standups, and code reviews
- Onboarded new team members through planned exercises, shortening learning time by ~40%

Software Engineer Intern, Project Falcon

Jun 2024 - Dec 2024

- Built company's first production-ready pipeline in 4 weeks, accelerating legal document intake by ~60%
- Prototyped an LLM-powered legal chatbot to process questions 100× faster than manual review
- Fine-tuned Dolly 2.0 on **AWS EC2**, boosting model accuracy on domain-specific tasks by an estimated 10–20%
- Engineered **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

- Created a Google Docs-style real-time editor with **Next.js**, **React**, and **Quill.js**, enabling concurrent users with minimal 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 ~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, reaching 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 accomplished best overall performance, lowering collision rate by 10% while ensuring an arrival rate of ~15% higher when compared to average of all other models
- Synthesized key reward components including collision avoidance, safety distance maintenance, and route adherence
- Cut down simulation runtime by ~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
- Developed secure authentication and dashboards, shortening 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

- Architected 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, delivering a lookup speed of 3,007 chars/s
- Incorporated a pre-trained LLM to generate accurate, structured explanations based on retrieved course materials
- Optimized document processing, realizing 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 ~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