

Wenzhou Lyu

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EDUCATION

University of California, San Diego

B.S, Dual Majors in **Data Science** and **Math-Computer Science**

GPA: 3.7/4.0

Relevant Coursework: Data Structure, Machine Learning, Object Oriented Algorithms and Design, Data Mining, Deep Learning, Data Visualization, Database, Algorithms Design, Recommendation System, Systems Programming, Theory of Computation, Optimization

Awards: IGEN (International Genetically Engineered Machine Competition) 2018 Bronze, IGEN 2019 Bronze, Provost Honors, Franklin Templeton 2024 AI Contest 1st place.

San Diego, CA

Expected June 2025

SKILLS

Programming Languages: Python, Java, C/C++, SQL, HTML/CSS/JavaScript, Shell, Processing, Git

Frameworks and Library: FastAPI, MongoDB, SwiftUI, ReactJS, AWS EC2, Django, ExpressJS, NodeJS, Postgresql, MySQL, D3JS, HighChartJS, Tailwind CSS, Docker, Pytorch, Pandas, Sklearn

RESEARCH EXPERIENCE

Contijoch Research Laboratory at UCSD Jacobs School of Engineering

San Diego, CA

Undergraduate Researcher

June 2023 - present

- Applied deep learning approaches (Segmentation) on IVUS images of coronary arteries to improve the existing diagnostic methods for detecting cardiac allograft vasculopathy
- Co-authored (**2x 1st author, 1x 2nd author**) abstracts, and got accepted to conferences presentations (**AHA, BMES**).
- Researched on new metrics development on CAV diagnosis on pattern of CAV progression.
- Developed new post-processing quality control algorithms to improve the segmentations results, significantly improving agreement score (Concordance correlation coefficient) from **0.61** to **0.73**

WORK EXPERIENCE

Monks (prev as Media.Monks)

Shanghai, China

AI Creative Tech (Software) Intern

July 2024 - September 2024

- Experimented with **LLM fine tuning** and prompt engineering with linguistic hard rules, and developed a customized LLM based English-to-Chinese **transcreation** tool for Under Armor products advertisement, saved **\$10K** USD per year.
- Established AI image generation workflows and pipelines using ComfyUI and Leonardo AI, training studio artists in effective tool usage and parameter tuning for enhanced creative outputs
- Developed the main algorithms for an agent-based library-use book recommendation system in an iOS app by utilizing **RAG, function calling, and prompt engineering**.

Veriskin

San Diego, CA

R&D Intern

October 2023 - December 2023

- Established comprehensive training and evaluation pipelines for **time series classification**.
- Replicated and implemented ML models (**CEEMD-Mulirocket, customized 1D-CNN**), tested along with customized **HIVE-COTE** and **HIVE-COTE 2** models on time series data for skin cancer detection.

San Diego Supercomputer Center

San Diego, CA

Software Engineer Intern

July 2022 – Sep 2022

- Created customized functions for the SDSC-developed **Dynamics CRM** package to enable analysts and engineers to more easily interact with the **CRM API** with Python.
- Collaborated in a scrum team to build a service dashboard platform with a frontend using ReactJS and integrated with a **Django** backend.
- Designed and developed the **RESTful API** using Django REST Framework to flow data between the backend and frontend to enable customers to monitor their billing and service status.

- Established ETL pipelines for database transmission from Dynamics CRM to the dashboard website to enable periodic database updates

SELECTED PROJECTS

WhatNext - Co-Founder, Developer

January 2024 - May 2024

- Developed an **IOS** application with a **language user interface** and conventional social media features, enables conversations with LLMs to provide best recommendations for restaurants and entertainment sites based on user preferences and history. (**SwiftUI, FastAPI, MongoDB, Fine Tuned LLM**)
- Won **\$15,000** prize as the 1st place team of the Franklin Templeton 2024 AI Contest, converting to start-up

TritonMeet - Designer, Developer

November 2023 - December 2023

- Designed and developed a pure **SMS** anonymous campus meeting platform for UCSD students (**Twilio API, MongoDB, Node.js**)

FIRE Life (Working Title) - Cofounder, Developer

October 2024 - Present

- Developing a financial tool, community all-in-one mobile application for Chinese FIRE (financially independent retire early) community. (**SwiftUI, MySQL, FastAPI, Alibaba Cloud**)

MiniMax Tree and Heuristic Evaluations in 2048 Solver

April 2024 - May 2024

- Developed and optimized an AI solver for the 2048 puzzle game using the **Expectimax** search algorithm, implementing a depth-3 MinMax tree and improved with **weighted grid** and **smoothness** heuristics, achieving 100% chance passed **20k score**

Reinforcement Learning in BlackJack Game Play

April 2024 - May 2024

- Implemented three optimized reinforcement learning algorithms in game engine: **Monte Carlo** Policy Evaluation, **Temporal-Difference** Policy Evaluation, and **Q-Learning**, and explored the effectiveness of each in BlackJack Game Play.

ABSTRACTS/CONFERENCE PRESENTATIONS

1. **Lyu W.**, Adler E., Ang L., Mahmud E., Contijoch F., Birs A.S. Whole Vessel Automated Segmentation of IVUS Images for Evaluation of Cardiac Allograft Vasculopathy. International Society for Heart and Lung Transplant Conference. Poster Presentation. April 2025
2. Birs A.S., **Lyu W.**, Adler E., Ang L., Mahmud E., Contijoch F. Automated IVUS Image Analysis for Cardiac Allograft Vasculopathy Surveillance in Heart Transplant Recipients. American Heart Association. Moderated Digital Poster Presentation. Nov 2024
3. **Lyu W.**, Birs A.S., Ang L., Adler E., Mahmud E., Contijoch F. Quantitative Evaluation of IVUS Images Segmentations Generated by a Pre-Trained Neural Network (DeepIVUS) Improves Agreement with Clinical Evaluation. Biomedical Engineering Society Annual Meeting. Poster Presentation. Oct 2024