

Tony Lei

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EDUCATION

University of Washington, Seattle

Master of Science in Statistics

Incoming: September 2025

University of California, Los Angeles

Bachelor of Science in Applied Mathematics, Minor in Data Science Engineering

Graduated: June 2024

Cumulative GPA: 3.80

SKILLS

Languages: Python, SQL, TypeScript, JavaScript, HTML/CSS, C++

Other Software/Tools: Git, React, Next.js, PyTorch, FastAPI, MLX, Pandas, NumPy, LangChain

TECHNICAL PROJECTS

LLM-Based Japan Travel Assistant

San Francisco, CA

Individual Project

May 2025

- Developed a full-stack Next.js application with FastAPI backend to provide personalized Japan travel recommendations
- Designed data pipeline to extract, process, and summarize 83,000+ Reddit posts and 619,000+ comments for training data
- Fine-tuned 50,000 rows of training data on Mistral 7b using MLX framework to create a specialized travel assistant
- Engineered specialized prompt with few-shot learning to optimize conversation summarization and advice generation

Boba Shop Information Retrieval System

Los Angeles, CA

Individual Project

May 2024 – Jun 2024

- Developed a Flask application to handle incoming SMS messages via Twilio API and reply with generated GPT responses
- Established a Cassandra vector database to efficiently store and rapidly retrieve text file data relevant to user's inquiry
- Integrated LangChain with GPT-3.5 to generate accurate and contextually relevant responses for SMS reply
- Demonstrated the system's functionality and potential to enhance customer service to senior management at the boba shop

Super Mario Bros with Reinforcement Learning

Los Angeles, CA

Project Lead

Jan 2024 – Mar 2024

- Trained RL agent (Mario) using the greedy-epsilon algorithm with Open AI Gym, achieving the goal by 50,000 iterations
- Lectured four-member team through reinforcement learning concepts including value functions and Bellman optimality
- Presented to a group of 40+ students and demonstrated a successful run of the Mario agent completing level World 1-1

Plane Ticket Price Prediction

Los Angeles, CA

Project Lead

Jan 2023 – Mar 2023

- Lead a team of 7 members to predict airplane ticket prices given flight destination and other quantitative and qualitative variables (flight distance and passenger class) using multiple regression models such as Random Forest Regressor
- Devised a data pipeline with Python's Pandas library to aggregate web-scraped data with existing dataset
- Automated daily web-scraping and aggregation of flight data by utilizing GitHub Actions to call API via Python script
- Developed a front-end webpage with user interface and selections for flight prediction using the StreamLit library
- Processed and cleaned a 31 GB flight dataset with ~6,000,000 rows and 20+ features using Python's Pandas library

Interactive Chatbot using Neural Networks

Los Angeles, CA

Project Lead

Sept 2022 – Dec 2022

- Programmed a chatbot using PyTorch to respond to multiple categories of inquiries using a feed forward neural network
- Developed an NLP processing pipeline using bag of words, tokenizing, and stemming to create training data for model
- Obtained an overall loss of 0.001 over 1000 epochs with 8 hidden layers using the Adam Optimizer in PyTorch
- Presented interactive chatbot to a classroom of 30 students and experimented with student queries with positive feedback

EXTRACURRICULARS

2022/2023 ASA DataFest at UCLA

Los Angeles, CA

Top 15 Finalist, Team Lead

Apr 2022, Apr 2023

- Competed in a 48-hour intensive data-thon against 4+ universities with a total of 300+ students spanned over 75 teams
- Processed and cleaned a 2 million+ entries CSV about video gameplay data using the Pandas and NumPy libraries
- Placed in top 20% of all teams (*Top 15 out of 75*) and presented findings to a live panel of 6 data science professionals
- Created effective and insightful data visualizations relating gameplay completion and player demographics (age and sex) such as line plots over time, bar plots grouped by age and sex using the Matplotlib and Seaborn libraries

Data Science Union at UCLA

Los Angeles, CA

Member

Apr 2022 – Jun 2024

- Undertook 10-week intensive training course teaching various data science concepts including data visualizations, data preprocessing, data cleaning and machine learning; learned different algorithms, such as linear regression and KNN
- Learned SQL, deep learning, CLIP, Tableau through data science workshops taught by data science professionals
- Competed in a data visualization competition and analyzed a million+ movie rating dataset and leveraged bar plots, box plots to display correlations between movie scores and movie descriptions using the Matplotlib and Seaborn libraries