Education

Stanford University

M.S. in Computer Science (Human Computer Interaction) B.S. in Computer Science (Artificial Intelligence)

Coursework:

Artificial Intelligence, Natural Language Processing, Cross-Platform Mobile App Development, Web Programming, Data structures & Algorithms, Computer Systems, Probability Theory, Computational Logic, Cryptography, Cybersecurity, Linear Algebra & Multivariable Calculus

Professional Experience

Amazon

Software Developer Engineer Intern

- Worked in a core AWS Cloud team dealing with Tier 0 services essential to running the EC2 compute platform and Amazon VPC.
- Solved challenging problems associated with resolving networking configurations of Elastic Cloud Compute (EC2) instances.
- Produced a production-ready authenticated full-stack application exposing an automated service tool for VPC service teams.
- Reduced service time from 10+ minutes to < 1 minute for operators verifying network configurations and performing manual log analysis.
- Project impacts users across all (25+) commercial regions allowing for dedicated analysis of AWS session life-cycles and log tracing.

Stanford AI Lab

University Research

- Worked under Prof. Chris Potts and mentor Omar Khattab in the Stanford NLP group with a focus on the DSPy framework.
- Designed a novel method for optimizing and combining expert models utilizing DSPy modules and a custom routing function.
- Used density-based clustering techniques on embeddings to improve upon baseline model results on datasets with multiple topic splits.
- Algorithm automatically clusters new inputs into existing groups, triggering the router to choose the best available expert model.

Wolfram Research

Software Developer Intern

- Contributed to the Wolfram Neural Net Repository by providing models and resources to the Wolfram community.
- Extended functionality of the Wolfram Language by implementing new user functions and revising existing functions.
- Analyzed and created individualized visualizations for existing graph data in the Wolfram Data Repository.
- Established compatibility in the Mathematica interface between the Wolfram Language and the Unity game engine.

Game Physics Simulation Intern

- Prototyped physics simulations of a variety of custom rigid-bodies and joints using external game physics engines.
- Designed user interfaces using UI/UX principles for a physics AR/VR applications project using Unity and C#.

Notable Projects

BERT Multitask Model Python, PyTorch	Spring 2024
• Developed a BERT multitask model from scratch with sentiment analysis, semantic text similarity, and paraphrase det	ection capabilities.
• Placed top 75 in model test leaderboards in a class of 500+ Stanford undergraduate and graduate students with custom model.	
Bubble Javascript, React Native, Expo, PostgreSQL, Supabase, REST API	Spring 2024
• Created a functioning full-stack social computing app designed to connect university students with upcoming events.	
• Implemented a full onboarding process with authentication, back-end database, several custom screens, and REST API endpoints.	
Hack with Google Google AppSheet, AppScript, GPT-3.5-Turbo, Optical Character Recognition	Summer 2023
• Awarded second place prize by Google. Judged on innovation, technical execution, accessibility/impact, and business potential.	
• Spearheaded the development of a web app with several AI features to boost the efficiency of manufacturing companies.	
• Implemented automatic document processing from images, text translation, document simplification, and query-based clarification.	
Automated Code Review Model Python, GPT-3.5-Turbo	Spring 2023
• Created an automated code review model that generates comments and performs targeted code revision given a code snippet.	
• Utilized the novel DSPy framework with custom prompt templates to achieve results comparable to baseline GPT model.	
Movie Recommending Chatbot Python	Winter 2023
• Constructed a chatbot that stores users' movie ratings and uses item-item collaborative filtering to recommend similar movies.	
• Implemented all main functionality including CLI parsing, filtering algorithms, dataset analysis, and prediction algorithms algorithms are consistent of the second seco	rithms.
Encrypted Chat Client Javascript	Winter 2023
• Built a working secure and efficient end-to-end encrypted chat client that ensures forward secrecy and break-in recovery.	
• Designed and implemented the Double Ratchet algorithm, a popular session setup protocol that powers Signal and V	WhatsApp.
Operating Systems Shell C++, Valgrind	Spring 2022
• Developed a fully-functional sophisticated shell that utilizes multiprocessing using fork, execvp, and waitpid system	calls.
• Functionality supports pipelines, I/O redirection, and allows handling of multiple executable commands.	
Languages: Python, JavaScript, TypeScript, Wolfram Language, C/C++, C#, SQL	

Skills: AWS, Agile (CI/CD), Cloud technologies, Cross-Platform App Development (React Native, HTML/CSS, Expo, Express.js, Node.js, REST API, MongoDB, Firebase, Flask), Jupyter Notebook, Google Suite, x86, IATFX, Git

2023 - 2025 2021 - 2025

Seattle, WA

Summer 2024

Stanford, CA

Champaign, IL

Summer 2021, 2023

2023 - 2024

Summer 2022