Collin Jung

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Education

Stanford University **Expected 2025**

M.S. in Computer Science (Human Computer Interaction)

B.S. in Computer Science (Artificial Intelligence)

Notable Courses:

AI: Principles and Techniques, Cross-Platform Mobile App development, Computer Organization and Systems, Computational Logic, Cryptography, Cybersecurity, Design and Analysis of Algorithms, Natural Language Understanding, Operating Systems Principles, Web Programming Fundamentals

Professional Experience

DSPy: Framework for Programming with Foundation Models **Stanford, CA**

Stanford NLP Group, Research Assistant **Autumn 2023**

- Worked under Prof. Christopher Potts and Omar Khattab to develop a novel LLM compiler and framework.
- Constructed custom teleprompters which automate prompting for arbitrary pipelines and allows for optimization.

Wolfram Research **Champaign, IL**

Software Developer Intern **Summer 2021, 2023**

- 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 **Summer 2022**

- 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#.

Featured Projects

Automated Code Review Model **Spring 2023**

- Developed a **code review model** using GPT-3.5-Turbo to generate specific comments and revised code from a code snippet.
- Utilized a Demonstrate-Search-Predict (DSP) framework with custom prompt templates for targeted evaluations.

Personal Website ("Ensemble") **Spring 2023**

- Designed a website using Full Stack Development that allows users to find interest groups based on followed tags.
- Created using **Javascript, Node, Express,** and a **MongoDB** database.

Movie Recommending Chat Bot **Winter 2023**

- Constructed a chatbot that stores users' movie ratings and uses item-item collaborative filtering to recommend similar movies.
- Chatbot main functions and recommendation algorithm written in **Python**.

Encrypted Chat Client **Winter 2023**

- Implemented an encrypted chat client that uses the Double Ratchet Algorithm to ensure forward secrecy and break-in recovery.
- Encryption algorithm designed and written in **Javascript**

Propability-Based Playlist Shuffler **Autumn 2022**

- Created a music shuffling web app using **Python** that prioritizes less commonly played songs within a playlist.
- Shuffling algorithm constructed using Bayes' theorem and probability analysis.

Operating Systems Shell **Spring 2022**

- Developed a sophisticated shell in **C++** that utilizes multiprocessing using fork, execvp, and waitpid system calls.
- Functionality allows handling of multiple executable commands.

Memory Heap Allocator **Winter 2022**

- Implemented efficient implicit and explicit heap allocators in **C** with malloc, realloc, and free functionality.
- Used gdb and Valgrind to track and manage allocated memory blocks.

Awards

Hack with Google, Second Place **Chicago, IL**

Integrated Large Language Model Web App **Summer 2023**

- Led the development of a functioning web app with several AI features that would boost the efficiency of manufacturing companies by making manuals and documents more accessible to front-line workers.
- Successfully implemented functionality of automatic document processing, text translation, document simplification, and targeted query-based clarification.
- Used Google AppSheet, AppScript, ChatGPT, and Optical Character Recognition
- Judged on innovation, technical execution, accessibility/impact, and business potential.

Skills: Python, Wolfram Language, JavaScript, C, C++, C# MySQL, Jupyter Notebook, Google Suite, x86, LaTeX