Yuchen (Freya) Liu

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EDUCATION

University of North Carolina at Chapel Hill (UNC) — May 2025 (Expected), Chapel Hill, NC
Master of Science in Information Science
Relevant Coursework: Files and Database, Database Systems, Data Mining

North Carolina State University (NCSU) — May 2023, Raleigh, NC
Bachelor of Science in Technology, Engineering and Design Education. Minor in Computer Programming
GPA:3.71/4.0. Dean's List 2021 - 2023
Relevant Coursework: Operating Systems, Data Structures and Algorithms

TECHNICAL SKILLS

Languages: Java, C, Python, JavaScript, PHP, MATLAB
Tools/Frameworks: Laravel, Docker, Vue.js, Node.js, npm
Databases and OS: MariaDB, PostgreSQL, macOS, Linux
Miscellaneous: WordPress, Docker, LaTeX, Pandas

WORK EXPERIENCE

Web Developer — Jan 2022 - May 2023
Information Technology and Engineering Computer Services, NCSU — Raleigh, NC

- **Directed a team of 6 developers** in defining developmental plans, establishing project schedules, and implementing agile methodologies.
- **Developed a Faculty Salary Redistribution Platform** with Docker, Laravel, MariaDB, Vue.js, and PHP; enabled automated data tracking, categorization, and calculation functionalities.
- **Optimized data processing and calculating methods** by replacing inefficient for-loops with optimized data structures like Maps, Lists, and Trees; achieved a **40% increase in data processing and presenting speed**.
- **Reduced average page load time by 50%**, from 3 seconds to under 1.5 seconds through performance enhancements and infrastructure improvements.
- Conducted **browser automation tests and unit tests with 87% line coverage** using PHP factories, Laravel Dusk, and Mockery, leading to a **20% reduction in bugs reported in production**.
- **Resolved user tickets** within the department with a **98% user satisfaction rate**; actively participated in feature improvements and code refactoring.

Graduate Assistant - Web Developer — Oct 2023 - Present
Digital Research Services, UNC-Chapel Hill — Chapel Hill, NC

- **Designed and developed the Omeka S theme and plugin** with Node.js, npm, and gulp.js.
- **Implemented dynamic user interfaces and features** with PHP and JavaScript.
- **Collaborated closely with stakeholders** to ensure alignment with project vision and address detailed feedback.

PROJECTS

Web App
PHP, JavaScript, React

- **Prototyped and developed ConvoAI**, a large language model (LLM)-driven solution to bridge communication gaps for hearing impaired people using Google's PaLM 2.
- **Led a team of 5 developers and designers**, brainstormed ideas, directed developmental process, scaffolded backend structure, and hunted bugs.
- Implemented **Text-to-Speech (TTS)** capabilities, facilitating the conversion of textual data to an audio format, offering multiple formats and frequencies for frontend.
- Incorporated **Google's Speech-to-Text**, which transcribes users' spoken input into textual format. This functionality ensures ConvoAI understands and processes user requirements with utmost accuracy and efficiency.
- **Integrated Google Cloud Platform services**, optimizing for storage with features such as automatic uploads to GCP buckets.

Movie Watch List Manager
C, Python

- Created a program that selects the genres and generates corresponding lists of movies by **reading .txt and .csv datasets**.
- Enabled user viewing of the entire list of movies through **command lines or a GUI** (with C or Python, respectively).
- Allowed filtering by criteria including year ranges, genres, and keywords in titles, thus making it possible for users to choose movies to add to their watch list and remove them later.
- Implemented operations including Pointers, Structs, File I/O, Dynamic Memory Allocation, and Bitwise Operator in C and used algorithm such as Quicksort.

ACTIVITIES AND MEMBERSHIPS

Program Coordinator at UNC-Chapel Hill LGBTQ Center — 2023 - Present
Facilitate discussion topics, effectively manage group dynamics, uphold policies, and procedures.

Member, Girls Engineering Change at NCSU — 2022 - 2023
Hosted workshops to raise awareness about STEM majors and careers among young girls aged 8-14 years.

Small Pack Undergrad Orientation Leader (in person and online, Jul - Aug, 2019 and 2022) — 2019, 2022
Supported new international undergraduate students during their transition to life at NCSU.

Website Developer, Chinese Students and Scholars Friendship Association (CSSFA) at NCSU — 2018 - 2022
Managed the official website of CSSFA, and designed and refined website themes and plugins.