Wangrui Lei

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Education

University of Michigan, Ann Arbor Jan 2022 – May 2024
Bachelor of Science - Computer Science and Mathematics (GPA: 4.00/4.00) *Ann Arbor, MI*

- **Coursework:** Data Structures & Algorithms, Intro to Computer Organization, Foundations of Computer Science
- **Upcoming Coursework:** Intro to Operating Systems, Intro to Computer Security, Web Systems

Central University of Finance and Economics Sep 2019 – Dec 2021
Bachelor of Science - Computer Science and Technology (Transferred out) *Beijing, China*

Technical Skills

Programming Languages: C/C++, Python, HTML5/CSS3/JavaScript, Rust, Java, SQL
Tools & Technologies: AJAX, Node.js, Express, MySQL, MongoDB, Git, Unix shell, Makefile, Valgrind
Awards: Provincial Mathematical Olympiad 2018, 3rd Prize

Work Experience

Data-baker Technology July 2021 – Sep 2021
Speech Recognition Software and Algorithm Intern *Beijing, China*

- Applied **Kaldi** ASR to train GMM-HMM and DNN-HMM models for a self-owned language model library to increase the voice recognition accuracy rate by 16%.
- Conducted sound re-sampling and channel separation function for a Voice Activity Detection tool to convert the audio signal of over 50,000 hours of voice data set using **C/C++** and deployed on **Linux Server**.
- Led the localization of a pronunciation training system and delivered multi-language support for over 600 cooperative enterprises.

Projects

YelpCamp | *Node.js, Bootstrap, MongoDB* June 2022 – Aug 2022

- Constructed a Rate & Comment website frontend by **Bootstrap**, backend through **Express**, supported database in **MongoDB Atlas**, and deployed with **Heroku**.
- Developed **RESTful** APIs to serve and fetch data from backend and tested APIs by **Postman**.
- Supported user authentication and authorization using **Passport** and self-developed middlewares.

xv6 Partial Function Realization (MIT 6.S081) | *C/C++, Unix* Sep 2021 – Nov 2021

- Built a simplified version of the **UNIX** system calls including sleep, find, and xargs; added functions to trace the system calls and perform kernel-userspace communication of the ongoing system.
- Reduced physical memory usage by implementing lazy page allocation and copy-on-write fork for xv6.
- Developed mmap and munmap functions for memory sharing among processes.

Research Experience

Future of Programming Lab @UMich July 2022 – Present
Undergraduate Researcher *Ann Arbor, MI*

- Working on **RustViz** and fplab-server to generate interactive visualizations from simple **Rust** programs to assist users in better understanding the Rust Lifetime and Borrowing mechanism.
- Designed and realized the visualization of Rust loops to improve the learning experience for over 200 students.

Undergraduate Training Program for Innovation and Entrepreneurship Sep 2020 – Oct 2021
Undergraduate Researcher *Beijing, China*

- Carried out a research project on credit risk prediction of 200 listed Companies using big data analysis algorithms.
- Applied filtering, embedding, and packaging method with **Python Pandas** to reduce the number of indicators from 52 to 36, alleviating the operation time and the risk of over-fitting.
- Processed over 60,000 raw data and used **Scikit-learn** to build Logit model and Support Vector Machine model; deployed **LeNet** Neural Network to increase the prediction accuracy rate by 7%.

Activities

Rewriting the Code(RTC) July 2022 – Present
Girls in Electrical Engineering and Computer Science(GEECS) Feb 2022 – Sep 2022
Volunteer at Discover Engineering July 2022 – July 2022