Yu Xiang Luo

 +886 908-780-503   linus13514@gmail.com   in LinkedIn   Github   Website

Education

National Taiwan University   Sep 2021 – Jun 2025
Bachelor of Science in Computer Science, GPA: 3.6/4.0   *Taipei, Taiwan*
- **Relevant Coursework:** Data Structures and Algorithms (C), Algorithm Design and Analysis (C++), Machine Learning (Scikit-Learn), Operating Systems (C), Web Programming (React.js), Reinforcement Learning (SB3).

Experience

Taiwan AI Labs   Apr 2024 – Present
Machine Learning Engineer Intern   *Taipei, Taiwan*
- Trained VoiceCraft, a transformer based text-to-speech (TTS) model enabling voice synthesis and editing.
- Integrated a customized phonemizer from previous work and a GAN-based vocoder to enhance voice quality.
- Enhanced VoiceCraft by integrating VALL-E components, boosting inference performance and quality.
- Developed a transformer based lyrics-to-melody model with custom data representation and embedding.

Institute of Information Science, Academia Sinica   Jul 2023 – Apr 2024
Research Assistant   *Taipei, Taiwan*
- Co-authored a paper on service demand extraction using large language models (LLMs), presented at SCC 2024.
- Increased input/output extraction accuracy from 56%/48% to 97%/98%, surpassing previous methods.
- Built a custom dataset from LeetCode, enhancing training data quality for service demand extraction tasks.
- Optimized prompt design, improving model reasoning accuracy by 15% through Chain-of-Thought techniques.
- Reduced input/output extraction time by 40%/50%, significantly improving efficiency.

Projects

BandWitch | *Bash, React.js, Express.js, Node.js, Python*
- Developed a monitoring system enabling simultaneous use of multiple networks to scale total bandwidth.
- Configured system-level iptables and routing using Bash scripts.
- Achieved 80% scalability in network speed through effective utilization of multiple connections.

Machine Problems | *C, RISCV*
- Implemented user-level threading by allocating separate stacks in heap memory.
- Optimized virtual memory management through demand paging and swapping to maximize resource efficiency.
- Built xv6's timer interrupts to enable preemptive user-level threading and designed scheduling algorithms.
- Extended the inode structure to support double indirect blocks, increasing the maximum file size in the file system.

Full Stack Website | *React.js, Express.js, Node.js, MongoDB*
- Developed a full-stack web application with a responsive front-end and a RESTful API back-end.
- Implemented user authentication, data management, and CRUD operations with MongoDB as the database.
- Integrated an auto-recovery mechanism to ensure seamless application restart in case of crashes.

Swift App (Prototype) | *Swift, Xcode SDK*
- Developed an iOS app prototype as a practice in mobile device development and object-oriented programming.
- Implemented a Tic-Tac-Toe game and a Math game to showcase game logic and user interface design.
- Designed a homepage with SwiftUI, featuring sections for personal information and a photo carousel.

Technical Skills

Languages: C/C++, Python, JavaScript, Swift, RISCV
Web Development: React.js, Node.js, Express.js, MongoDB, PHP, MySQL
DevOps: Docker, Kubernetes, Bash, Git, Conda, NVM
Machine Learning: Scikit-Learn, PyTorch, Wandb