Winston Wang

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EDUCATION

National Tsing Hua University Sep. 2020 — Jan. 2024 (Graduated early)
Bachelor of Computer Science GPA: 4.03 / 4.3
Courses: Computer Architecture, Design and Analysis of Algorithms, Operating Systems, Database System, Introduction to Machine Learning, Deep Learning, Virtualization technology
Honors: Member of Phi Tau Phi Scholastic Honor Society (Top 1%)

WORK EXPERIENCE

Research Assistant (Continued From Previous Research Intern Role) Sep. 2023 — Mar. 2024
Research Intern Jul. 2023 — Sep. 2023
Academia Sinica, Taiwan

- Researched, designed and implemented an algorithm to deliver robust **aesthetic QR codes** with personalized style through **Diffusion Model (Generative AI)**.
- Customized **Huggingface's diffusers** pipeline to implement the final approved algorithm.
- Used **Weights & Biases** analytical platform to show execution results and generation performance.
- **Improved scannability by 50%** compared to previous work.

Software Engineer Intern Jul. 2022 — Jan. 2023
Galaxy Software Services Corporation, Taiwan

- Participated in the architectural design of an industrial **data visualization** project for monitoring weaving machines in a textile factory with over 100 machines.
- Utilized **React** and **TypeScript** to build a new front-end graphical interface for the monitoring system.
- Deployed **real-time monitoring** of weaving machine running status and abnormalities, significantly enhanced maintenance efficiency.
- Migrated from an old version of **Microsoft SQL Server** to **MariaDB**, using **MyBatis (Java)** for data retrieval, achieving more database control, and lower maintenance costs.

COLLEGE PROJECTS

Memory-augmented Reinforcement Learning in 3D Space (Senior Year Project) Feb. 2023 — Mar. 2024

- Proposed a software memory architecture that enables **reinforcement learning** models to comprehend spatial information, improving their performance in **navigation** and other tasks in 3D space.
- The item-collecting **performance increased by 25%** compared to the conventional reinforcement learning model in the 3D environment.

VanillaDB (Junior Year Database System Course Project) Mar. 2023 — Jun. 2023

- Implemented the logic behind database transactions in **Java**.
- Added the EXPLAIN keyword functionality to **profile** the SQL query structure, **memory footprint**.
- **Reduced transaction average latency by 20%** through introducing the page table to the database system.

NachOS (Sophomore Year Operating System Course Project) Sep. 2022 — Nov. 2022

- Successfully implemented in **C++** with key linux-based OS components including **I/O system calls**, **page tables**, an **scheduler** and a **timer**, resulting in a fully functional operating system.
- Modified the file system to **handle files 800% larger** than default specification and added **subdirectory** functionality, significantly improved file organization and management capabilities.

Socket Server On Kubernetes (Senior Virtualization Technology Course Project) Jun. 2023

- Utilized **Kind** to build a Kubernetes cluster for streamlined testing and development.
- Developed a custom socket server **Docker image** to optimize image size.
- Successfully demonstrated **server-client communication** within the Kubernetes cluster.

Online Voting System (For the Student Association Election During the Pandemic) Jan. 2022 — Apr. 2023

- Deployed key admin panel features using **Express.js** for an online voting application, serving **over 500 active users**, enhanced operational efficiency.
- Designed and implemented the database architecture storing candidates' information using **MongoDB**.
- Implemented middleware for robust user **authorization and authentication**.
- Created and tested **RESTful APIs** through **Axios** and Postman.

TECHNICAL SKILLS

Programming Tools: C++ (3 Years), Python (2 Years), JavaScript (2 Years), TypeScript, HTML, CSS, Node.js, Java
Development Tools: Visual Studio Code, Github Copilot, PyCharm, IntelliJ, Docker
Machine Learning Tools: PyTorch, TensorFlow, scikit-learn, Huggingface
Frameworks: React.js, Express.js, MyBatis
Database: MariaDB, Microsoft SQL Server, PostgreSQL, MongoDB
Productivity Tool: Git, Jenkins, Jira
Project Management Tool: Notion