Wilbert Harriman (黃振維)

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EDUCATION

National Tsing Hua University | Hsinchu City, Taiwan — Sep 2022 – Aug 2023 **(expected)**
Master of Science in Computer Science
- Cumulative GPA: 4.0 / 4.3

National Tsing Hua University | Hsinchu City, Taiwan — Sep 2018 – Jun 2022
Bachelor of Science in Computer Science
- Cumulative GPA: 3.9 / 4.3

SKILLS

Programming Languages: C, C++, Java, Python, Ruby, TypeScript
Frameworks/Tools: PyTorch, React.js, Node.js, Django, Git, PostgreSQL, Redis
Languages: Indonesian (Native), English (Fluent), Mandarin (Fluent)

PUBLICATIONS

Po-Hao Huang, Yung-Yuan Lan, **Wilbert Harriman**, Venesia Chiuwanara, Ting-Chi Wang. Fast and Accurate Detection of Audio Adversarial Examples, IEEE ISCAS 2023.

WORK EXPERIENCE

Teaching Assistant — Feb 2023 – Jun 2023
National Tsing Hua University
- Provided tutoring in office hours and designed assignments for **Introduction to Database Systems**.

Software Engineer Intern — Jul 2021 – Sep 2021
WritePath Pte. Ltd.
- Developed a **Python** service that allows users to upload and translate documents (docx, xlsx, pptx).
- Implemented a secure token-based authentication to ensure user credentials are never stored.
- Created a user interface for the translation service using **HTML** and **CSS**.

PROJECTS

VanillaDB — Oct 2022 – **present**
- Leading the development of VanillaDB, a database system written in **Java** for educational purposes.
- Conducted thorough testing and debugging to identify and fix issues, ensuring system stability.
- Developed an extension to **SQL** to facilitate high-dimensional vector search.
- Implemented an indexing algorithm resulting in a 13x improvement in nearest neighbor search throughput while maintaining an 80% accuracy.

YouFind — Oct 2022 – Jan 2023
- Developed a web application for YouTube subtitle analysis using **Ruby**, enabling users to efficiently navigate videos.
- Designed and implemented a scalable backend API to retrieve YouTube video subtitles, perform analysis, and store the results in a **PostgreSQL** database.
- Utilized **Redis** as a distributed caching solution to optimize access to external data.
- Conducted code reviews and addressed code smells using **Reek** code smell detector tool.
- Implemented background processes using **Amazon SQS** to handle long-running analytical tasks.
- Automated testing by configuring a **Github Actions** Continuous Integration pipeline.

CAPTCHA Reader — Nov 2021 – Dec 2021
- Developed a tool to accurately parse text in CAPTCHA images with a 90.68% success rate.
- Built a **Convolutional Neural Network (CNN)** to encode CAPTCHA images as vectors.
- Built a **Recurrent Neural Network (RNN)** with attention mechanism to parse the encoded vectors.
- Trained the entire model end-to-end using **TensorFlow 2**.