Tzu-Tsen Hsieh

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EDUCATION

Electrical Engineering
National Taiwan University, Taiwan, Master — Jul 2022—Present
National Central University, Taiwan, Bachelor — Jul 2019—Jun 2022

Faculty of Science and Engineering
Linköping University, Sweden, Exchange student — Jan 2022—Jun 2022

PROJECT EXPERIENCE

Feastforward: Leftover Service and Management Platform *(JavaScript, Web Application)* — Nov 2023—Dec 2023
- Developed a digital platform to address food wastage, using React.js for frontend, Spring Boot for backend, and MySQL for database.
- Executed the project following Scrum methodology and implemented DevOps practices, covering design, coding, testing, and deployment.
- Participated in frontend design, specification design, frontend and backend integration.

Memohub: Capture, Connect, Contemplate *(JavaScript, Web Application)* — Nov 2023—Dec 2023
- Designed a platform for tracking thoughts and assisting personal introspection, using frontend with React.js and backend with Node.js.
- Integrated the platform with OpenAI API to generate questions using prompting design.

Yozicare: 2023 GDSC (Google Developer Student Clubs) solution challenge *(Flutter, App)* — Jan 2022— Jun 2023
- Provided assistance to people with chronic kidney disease (CKD) with CKD map, CKD statistics, chatbot, food composition analysis.
- Achieved the shortlist of the Global Top 100 teams (Only team in Taiwan).
- Took charge of CKD map with Google Map API, integrating interface, and producing demo video.

Reversible Data Hiding in Encrypted Image via Secret Sharing Based on $GF(2^8)$ *(Python, Crypto)* — May 2023
- Implemented Shamir's secret sharing integrated with zigzag algorithm for encrypting image.
- Improved PSNR of the decrypted image from 0.5 to infinity and enhances SSIM from 0.98 to 1.

Robust Consistent Video Based on Monodepth Estimation from Single Image *(Pytorch, Computer Vision)* — Dec 2022
- Implemented Monodepth Estimation with the combination of Robust Consistent Video Depth Estimation and Adelai Depth Estimation.
- Enhanced depth estimation accuracy from 0.5138 to 0.9121 in Sintel dataset.

Analyzing infrastructure of known phishing domains *(Python, Networking)* — Jan 2022—Jun 2022
- Analyzed the probability of being a phishing site based on its infrastructure with Shodan and WhoIs.
- Utilized web crawler in Python to monitor reported phishing domains on Phishtank and executed shell script on Linux server.
- Collaborated with 3 Swedish students and served as implementor.

Brain-Computer Interface for Mirror Learning and Virtual Rehabilitation *(Python, EEG)* — Jul 2020—May 2021
- Aimed at helping paralyzed patients by analyzing imagery electroencephalogram signals to control the virtual character.
- Analyzed signals with common spatial patterns and linear discriminant analysis in Riemann space.

WORK EXPERIENCE

Special Topics on Medical Ultrasound Teaching Assistant — Mar 2024—Present

N.T.U. Electrical Engineering Department
- Utilized a FPGA development board for ultrasound tutorials, and employed C# (.Net Framework) as the development interface.
- Assisted 10+ students in solving interface design problem.

Microcontroller Unit Teaching Assistant — Jul 2019—Aug 2020

N.C.U. Mechanical Engineering Department
- Taught undergraduates to design simple electric circuits of microcontroller unit with C language.
- Assisted 5+ students in finding problems of their program.

SKILLS

- Language: Native Speaker of Mandarin Chinese, Advanced in English (TOEIC 815)
- Programming Language: Python, Matlab, C/C++, C#, JavaScript
- Tool: Git, Docker, CICD (Jenkins)

ACTIVITIES

Google Development Student Club member — Oct 2022—Sep 2023
- Developed an app using Google tech to address SDGs through self-learning.

Executive of NCU Guitar Club — Jul 2019—Jan 2020
- Organized Guitar Performance Showcases for 10+ performances.