FENG-KAI (LEO) HUANG MASTER AT NYCU

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About Me

A self-disciplined MS student at National Yang Min Chiao Tung University who focuses on researching deep learning, computer vision and people flux estimation, has strong sense of responsibility and loves cooperating with others.

Skills

Programming Languages: **Python**, C/C++, HTML, JavaScript
Expertise: **Deep Learning (PyTorch), Computer Vision**, AIoT
Development Tools: Jetson Nano, Raspberry Pi, Arduino, Git
Operating Systems: **MacOS, Linux**, Windows, Raspberry Pi OS
Languages: Mandarin (native), English (TOEIC 800/990)

Education

National Yang Ming Chiao Tung University (NYCU) | Hsinchu, Taiwan | 2022/09 - 2024/07 (expected)
Master of The Graduate Degree Program of Artificial Intelligence
Lab: Big data Analytics and Social Intelligent Computing Laboratory | **Advisor**: Dr. Hong-Han Shuai
Research: Designed multi-scale deep neural network to solve the scale-variation and offset-variation problems in people flux estimation, and proposed a self-supervised shift pretraining mechanism to address the lack of data annotations. (Deep learning, computer vision, crowd counting, people flux estimation, self-supervised learning)
Awards: Honor Student in 2022 Spring
Grade: 4.25/4.30 (GPA) | 98.17/100.00 (%)

Chung Yuan Christian University (CYCU) | Taoyuan, Taiwan | 2018/09 – 2022/06
Bachelor of Electrical Engineering
Awards:
• The Honorary Membership of The Phi Tau Phi Scholastic Honor Society of the Republic of China
• Six semesters (2018 Fall/Spring, 2019 Fall/Spring, 2020 Fall/Spring) of Presidential Award
Grade: 3.98/4.00 (GPA) | 92.30/100.00 (%) | 1/104 (ranked in department)

Practical Experiences

Smart Speaker Based on Detection of Millimeter Wave | CYCU | 2021/01 – 2022/01

ℹ Developed a smart speaker on Jetson Nano with mmWave gesture music control utilizing machine learning Algorithms (K-means, DBSCAN) and Gated Recurrent Unit (GRU).

🏅 1. Gold Prize | 2021 Seoul International Invention Fair (SIIF 2021) | Korea Invention Promotion Association.
2. Honorable Award | 2021 Student Engineering Papers Competition | Chinese Institute of Engineers.
3. 1st (TQC+) & 3^{rd}(IP) place | International ICT Innovative Services Awards 2020 | Ministry of Economic Affairs, Ministry of Education, Chinese Society for Information Management, Computer Skills Foundation.

🛠 Python, Pytorch, Jetson Nano, Raspberry Pi 3, BM201-PC3 | point clouds gesture recognition, machine learning

2022 AI CUP Competition on UAV Smart Counting | NYCU | 2022/11 – 2022/12

ℹ Implemented small object detection with a small dataset collected with unmanned aerial vehicle

🏅 **Honorable mention Award** | 2022 AI CUP Competition on UAV Smart Counting | Ministry of Economic.

🛠 Python, Pytorch, Roboflow | object detection, transfer learning, ensemble learning

Intelligent Voice Security Robot | CYCU | 2020/07 – 2020/11

ℹ Designed an AIoT system which can detect threats (burglary, fire) in the house, control the monitors with the mobile app, record and connect everything with the cloud.

🏅 3rd place (TQC+) | International ICT Innovative Services Awards 2020 | Ministry of Economic Affairs, Ministry of Education, Chinese Society for Information Management, Computer Skills Foundation

🛠 Python, JavaScript, HTML, Firebase, App Inventor, Tensorflow.js, Arduino, Web Speech API, IFTTT, Roboflow | AIoT, object detection, App development, motor control, web design.

Publications

1. C. -L. Wan, **F. -K. Huang** and H. -H. Shuai, "Density-Based Flow Mask Integration via Deformable Convolution for Video People Flux Estimation," to appear in IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) (accepted in October 2023).
2. Y. -P. Liao, **F. -K. Huang**, Y. -J. Xia and H. Cheng, "Smart Speaker Based on Detection of Millimeter Wave," IEEE International Conference on Consumer Electronics - Taiwan (ICCE-TW), 2022.

Patents

1. TW Patent I817194, "Rotate-type smart speaker and rotate-type home application controller", October 1, 2023.
2. TW Patent I788834, "System for detecting fecal and toilet lid with fecal detection thereof", January 1, 2023.