Gi-Luen (Allen) Huang 黃繼綸

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Work Experiences

Machine Learning Engineer, MobileDrive, New Taipei, TW | Jun. 2023 ~ Now
Python/C++/Git/Docker/ROS/PyTorch

- Developed an approach to project future vehicle trajectories onto current front-view images, serving as ground truth for the 3D vehicle future trajectory prediction model. This approach utilizes data collected by vehicles equipped with RTK and front-view cameras, enabling model training with **minimal human intervention**.
- Developed and optimized a 3D vehicle future trajectory prediction model, enhancing performance through empirical experiments focused on dataset improvement, warping method, and data augmentation. Conducted model quantization for deployment on embedded devices.
- Deployed the quantized 3D vehicle future trajectory prediction model on the **Qualcomm 8295 platform** by converting the Python program to C++. Optimized model efficiency to achieve **200 FPS**, and the quantization error (L1 error) was reduced from 4.0 to 0.15 **(↓266%)**.
- Collaborated with team members to integrate the quantized 3D vehicle future trajectory prediction model into the **AR navigation algorithm**, enabling **on-vehicle testing**. This enhancement significantly improved performance in challenging driving scenarios, such as navigating roundabouts and sharp turns.
- Designed an intersection depth estimation auto-labeling algorithm using projected RTK trajectories.

Maching Learning Intern, Jubo Health, New Taipei, TW | Jul. 2022 ~ Aug. 2022
Python/Git/CI & CD/Docker/Kubernetes

- Implemented general frameworks to support various deep learning tasks including recognition, segmentation, and object detection.
- Enhanced the existing wound classification model, improving accuracy by approximately **3%.**
- Deployed models as a service using Docker on GCP.

Machine Learning Intern, Neurobit, Taipei, TW | Feb. 2022 ~ Jun. 2022
Python/Git/Statistics

- Developed Gaze Estimation Model using a self-supervised learning technique, successfully reducing the error rate by **90%**.
- Designed a feature matching algorithm to accurately detect torsional eye rotation.

IT Intern, TSMC, Hsinchu, TW | Jul. 2021 ~ Sep. 2021
Java/Javascript/Git/Docker/Kubernetes

- Full-stack system integration.
- Implemented backend functionality for a webpage that changes color in response to user button clicks.

Publications

- Chen, P. W., Yang, T. S., Huang, **G. L., Huang**, et,al. **"Viewing Bias Matters in 360° Videos Visual Saliency Prediction"**. IEEE Access 2023.
- **Huang, G. L.**, & Wu, P. Y. (2022, October). "CTGAN: Cloud Transformer Generative Adversarial Network". In 2022 IEEE International Conference on Image Processing (ICIP) (pp. 511-515). IEEE.

Selected Projects & Awards

CTGAN: Cloud Transformer Generative Adversarial Network | Feb. 2021 ~ Oct. 2022
[ICIP 2022] Designed a generative network to remove the cloud region from the temporal cloudy satellite images

Face Expression and Tone of Voice for Deception System | Mar. 2019 ~ May 2021
[ICSSE 2020 best student paper award] Developed a system to extract facial micro-expression to determine whether the subject is lying

2022 T-Brain Competition -- Lung Adenocarcinoma Pathological Image Segmentation | Mar. 2022 ~ Jun. 2022
Developed Deeplab-v3-plus to segment the cells having STAS features **(2/307, Top 1%)**

2022 AIdea Competition -- Crops Status Monitoring by Image Recognition | Mar. 2022 ~ May 2022
Developed SOTA model "ConvNext" to conduct image classification **(3/428, Top 1%)**

2022 AIdea Competition -- Human Voice Denoising |Feb. 2022 ~ May 2022
Developed an unet-based 1D model with time-frequency fourier transform loss **(6/282, Top 2%)**

2021 T-Brain Competition -- Traditional Chinese Scene Text Recognition (Advanced) | Nov. 2021 ~ Dec. 2021
Applied Yolov5 for scene text detection, and further apply Vision Transformer for scene text recognition **(6/128, Top 5%)**

2021 T-Brain Competition -- Traditional Chinese Scene Text Recognition (Intermediate) | Aug. 2021 ~ Oct. 2021
Applied ArcMargin and Focal loss makes the model learn more useful features **(5/183, Top 3% and Innovation Award from T_brain)**

Education

National Taiwan University, NTU | Feb. 2021 ~ Jan. 2023
M.S degree in Graduate Institute of Communication Engineering (GICE)
GPA: 4.30/4.30   Ranking: 1/160

Research Interests

- Machine Learning
- Deep Learning For Computer Vision
- Deep Learning For Audio Processing

Technical Skills

- Programming: Python, C++
- Deep Learning Framework: PyTorch
- Developer Tools: Git, Docker
- Libraries: Pandas, NumPy, Scikit-Learn, Matplotlib, Flask

Languages

- English Proficiency Test Certificate -- TOEIC 825
- CEFR-B2 Vantage
- Mandarin (native speaker)