WEI-CHENG LIN

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Research Interests

- Computer Vision
- Image Processing
- Deep Learning
- Point Cloud Processing

Education

National Taiwan Normal University (NTNU)　　　　　　　　　　**Sep. 2017 – Jan. 2022**
B.S in Electrical Engineering　　　　　　　　　　　　　　　　　　*Taipei, Taiwan*
- GPA: overall: 3.49, last-60: **3.98**

National Research ITMO University　　　　　　　　　　　　**Sep. 2019 – Jun. 2020**
Exchange Student Program in Computer Technology　　　　　　*Saint Petersburg, Russia*

Experience

AI Multimedia Lab, NTNU – Advisor: Chia-Hung Yeh　　　　**Sep. 2020 – Jun. 2022**
Research Assistant　　　　　　　　　　　　　　　　　　　　　*Taipei, Taiwan*
- Researched on 3D deep learning on point cloud and propose a novel neural architecture for point cloud upsampling.
- Collaborated with lab mate to combine 2D pose estimation model with 3D pose estimation in lightweight design.
- Assisted other team with the project on building a efficient video steaming.

Service System Technology Center, ITRI　　　　　　　　**Sep. 2022 – *exp.* Aug. 2023**
Image Analysis System Engineer　　　　　　　　　　　　　　　*Hsinchu, Taiwan*
- Developed a cross camera multi-person tracking framework based on person ReID model for the exhibition.
- Researched on gait recognition in order to learn a robust representation of person by introducing the gait information.

Publication

[1] C.-H. Yeh, **W.-C. Lin**. Enhanced Point Cloud Upsampling by Multi-branch Network and Attention Fusion. In *Proceedings of International Conference on Computer System, Information Technology, and Electrical Engineering (COSITE)*, 2021. (**Best Paper Award**) – ⚙ 📄

Projects

Sentiment Analysis of Tweet about Amazon Forest Fire – ⚙　　　　　　　**Jan. 2020**
Course final project of "Social Media Data Analysis"　　　　　　　　　*Saint Petersburg, Russia*
- Developed a neural model to predict sentiment score and achieve 78 % accuracy on validation set.
- Crawled 40k tweet data including keywords by Twint to analyze the public response to Amazon Fire by our model.

Fraud Detection on Credit Card Transaction – ⚙　　　　　　　　　　**Jan. 2021**
Course final project of "Pattern Recognition"　　　　　　　　　　　　　*Taipei, Taiwan*
- Experimented several unsupervised algorithms to try out the best performance on Kaggle dataset.
- Performed three types of pre-processing techniques for the extreme unbalanced dataset.

Vehicle Speed Estimation and Lane Changing Detection – ⚙　　　　　　**Apr. 2021**
Coursework of "Pattern Recognition"　　　　　　　　　　　　　　　　*Taipei, Taiwan*
- Integrated DeepSORT with Yolov3 to track vehicles and define two virtual lines to check car speed between two lines.
- Utilized background extraction to find the lane and determine the lane changing by calculating the slope of vehicle.

Archery Detection – ⚙　　　　　　　　　　　　　　　　　　　　　**May 2021**
Coursework of "Robotic Vision"　　　　　　　　　　　　　　　　　　*Taipei, Taiwan*
- Implemented color-based algorithm and Hough circle algorithm to find the contours of the archery.
- Designed a new pipeline by adding morphology operation and achieve better performance.

Applications of Image Processing – ⚙　　　　　　　　　　　　　　　**Jan. 2022**
Coursework of "Advanced Image Processing"　　　　　　　　　　　　　*Taipei, Taiwan*
- Implemented different operation on a raw image, and build an APP containing these functions by PyQT toolkit.
- Provided operations like histogram visualization, wavelet transform, histogram equalization, and customized kernel for convolution on my app.

Technical Skills

Languages: Python, C/C++, Shell Scripting

Libraries & Toolkits: Pytorch, Tensorflow, OpenCV, Open3D, Git, LaTeX

Honors & Rewards

2021 **Outstanding Student Award**, Deparment of Electrical Engineering, NTNU

2019 **Scholarships for exchange student program**, College of Technology and Engineering, NTNU

Leadership / Extracurricular

Chief P.E. Officer Sep. 2018 – Jun. 2019
Student Association of Department EE

Leader Sep. 2018 – Jun. 2019
Basketball Team of Department EE