

# WEI-CHENG LIN

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## Research Interests

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

## Education

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### National Taiwan Normal University (NTNU)

*B.S in Electrical Engineering*

- GPA: overall: 3.49, last-60: **3.98**

**Sep. 2017 – Jan. 2022**

*Taipei, Taiwan*

### National Research ITMO University

*Exchange Student Program in Computer Technology*

**Sep. 2019 – Jun. 2020**

*Saint Petersburg, Russia*

## Experience

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### 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 improve the discrimination of person ReID by introducing the gait information.

## Publication

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[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**) – [Github](#)

## Projects

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### Sentiment Analysis of Tweet about Amazon Forest Fire – Github

**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 – Github

**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 – Github

**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 – Github

**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 – Github

**Jan. 2022**

*Coursework of "Advanced Image Processing"*

*Taipei, Taiwan*

- Implemented different operation on raw image, and build an app including these functions by PyQt.
- Provided operations like histogram visualization, wavelet transform, histogram equalization, and customized kernel for convolution on my app.

## Technical Skills

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**Languages:** Python, C/C++, Shell Scripting  
**Libraries & Toolkits:** Pytorch, Tensorflow, OpenCV, Open3D, Git, L<sup>A</sup>T<sub>E</sub>X

## Honors & Rewards

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2021 **Outstanding Student Award**, Deparment of Electrical Engineering  
2019 **Scholarships for exchange student program**, College of Technology and Engineering

## Leadership / Extracurricular

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<b>Chief P.E. Officer</b> <i>Student Association of Department EE</i>	<b>Sep. 2018 – Jun. 2019</b>
<b>Leader</b> <i>Basketball Team of Department EE</i>	<b>Sep. 2018 – Jun. 2019</b>