

# I-SHENG FANG

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## EDUCATION

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### Master of Science

*September, 2020 - January, 2023*

Robotics, National Yang Ming Chiao Tung University, the merger of National Chiao Tung University and National Yang Ming University.

GPA: 4.26 / 4.3 (Phi Tau Phi Scholastic Honor Society)

### Graduate student

*January, 2020 - June, 2020*

Computer Sciences, National Chengchi University.

GPA: 4.3 / 4.3

### Bachelor of Science

*September, 2013 - January, 2018*

Mathematical Sciences, National Chengchi University.

GPA: 2.63 / 4.3

## PUBLICATIONS

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### Best of Both Sides: Integration of Absolute and Relative Depth Sensing Based on iToF and RGB Cameras

I-Sheng Fang, Wei-Chen Chiu, Yong-Sheng Chen

Submitted to IEEE International Conference on Robotics and Automation (ICRA), 2024.

Based on my master's thesis and collaborating with Qualcomm.

Integrating active sensing modality (indirect Time-of-Flight, iToF) and passive sensing modality (RGB) to estimate high-resolution metric depth without metric depth supervision. The model is supervised by cross-warped consistency and structure distillation.

### ES<sup>3</sup>Net: Accurate and Efficient Edge-based Self-Supervised Stereo Matching Network

I-Sheng Fang, Hsuao-Chieh Wen, Chia-Lun Hsu, Po-Chung Jen, Ping-Yang Chen, Yong-Sheng Chen

*Best Paper Award* at The 19th Embedded Vision Workshop (EVW) which in conjunction with IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), 2023.

[\[Code\]](#)

Adapting efficient cost-volume-based stereo matching to self-supervised learning and deploying the network on the drone to improve the robustness. Achieved quasi-real-time depth estimation on NVIDIA Jetson TX2 and real-time depth estimation on NVIDIA Jetson AGX Orin. ES<sup>3</sup>Net only needs 4 minutes for fine-tuning with novel collected data.

### Single Image Reflection Removal based on Knowledge-distilling Content Disentanglement

Yan-Tsung Peng, Kai-Han Cheng, I-Sheng Fang, Wen-Yi Peng, Jr-Shian Wu

IEEE Signal Processing Letters(SPL) Feb. 2022

Disentangling the reflection and transmission feature via knowledge distillation in order to remove the reflection with a single image.

### Self-Contained Stylization via Steganography for Reverse and Serial Style Transfer

Hung-Yu Chen\*, I-Sheng Fang\*, Chia-Ming Cheng, Wei-Chen Chiu.

(\* indicates equal contribution.)

IEEE Winter Conference on Applications of Computer Vision (WACV), 2020.

[\[Project Page\]](#)

Co-First author. Combining neural style transfer and deep steganography in order to resolve reverse and serial issue of style transfer.

## PROJECTS

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### **Justfont**

*July, 2021 - September, 2021; June, 2023 - September, 2023*

*AI Consultant*

Implementing state-of-the-art generative model solutions and providing strategic guidance for Justfont, a distinguished Taiwanese font company known for its typeface design and webfont service.

### **A Century of Heartfelt Sentiment**

**100<sup>th</sup> Anniversary Special Exhibition of the Taiwan Cultural Association**

*2021*

The exhibition of National Museum of Taiwan Literature, Tainan, Taiwan.

Synthesizing DeepFake video for historical figure of Taiwan Cultural Association.

### **Font Design with Progressive invariant GANs**

*2017*

*Honorable Mention* at MOST Workshop on Generative Adversarial Networks and GAN Project Competition.

Introducing GLCM, a invariant, in progressive growing VAE-GAN to embed font in  $\mathbb{R}^{300}$  latent space. Generating new font or glyph by modified the latent space Improved training speed, convergence speed and higher resolution.

### **Hanzi Typeface Research with Conditional Generative Adversarial Network**

*2017*

Poster of Taiwan Society for Industrial and Applied Mathematics Annual Meeting.

Using autoencoder and conditional GAN to embed font in  $\mathbb{R}^n$  latent space.

Advisor: Prof. Yen-Lung Tsai.

## APPOINTMENTS

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### **Microsoft AI R&D Center, Taiwan**

*March, 2022 - November, 2022*

*Software Engineer Intern (Face Science)*

Investigating vision transformer(ViT) as a backbone of perceptual loss and found that the task whether texture-driven or context-driven could affect the performance of the image-to-image translation model trained with ViT or ConvNet as the backbone of perceptual loss.

### **Enriched Vision Applications Lab**

*September, 2018 - September, 2019*

*Research Assistant*

Lab of National Chiao Tung University. My advisor is Professor Wei-Chen Chiu.

### **The First Step of AI and Deep Learning with Python**

*July, 2018 - September, 2018*

*Teaching Assistant*

The MOOCs of National Chengchi University.

Writing the cue for video cut and additional tips and solving students' problems by online and offline. Teacher is Prof. Yen-lung Tsai.

### **InQtech Co.,Ltd**

*September, 2017 - June, 2018*

*Deep Learning Scientist*

InQtech is AI and AIOT startup for deploying AI in manufacturing industry.

Investigating PCB segmentation by using semi-supervised GAN model to segment PCB for assembling.

### **The First Step of Data Analysis with Python**

*September, 2017 - January, 2018*

*Teaching Assistant*

The MOOCs of National Chengchi University. Writing the cue for video cut and additional tips and solving students' problems by online and offline. Teacher is Prof. Yen-lung Tsai.

**Leopard Mobile***July-September, 2017**intern*

Data analysis in CM Security commerce realization team. Predicting user behavior prediction with deep learning model

**NCCU Deep Learning & TWSIAM Student Group***January, 2017-January, 2018**Member*

Winning **first** place of study group final presentation in NCCU. Hosting discussion about GAN.