I-SHENG FANG

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EDUCATION

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

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
Under review.
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 weakly supervised by cross-warp (geometric) consistency and structure knowledge distillation.

ES^{3}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^{3}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
[Code]
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 nerual style tansfer and deep steganography in order to reslove reverse and serial issue of stlye transfer.

PROJECTS

Justfont *July, 2021 - September, 2021; June, 2023 - September, 2023*
AI Consultant

Implementing state-of-the-art generative models, integrating these models into Justfont's font design workflow, 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^{th} 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, an important organization during the Japanese rule of Taiwan.

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 modtified 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

Academia Sinica, Taiwan *March, 2024 -*
Research Assistant

Working on generative model at Research Center for Information Technology Innovation (CITI) with Dr. Jun-Cheng Chen.

Microsoft AI R&D Center, Taiwan *March, 2022 - November, 2022*
Software Engineer Intern

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, working with SunDa Yang, Chien-Yi Wang, Prof. Shang-Hong Lai, Dr. Trista Chen, and the face science team.

National Chiao Tung University *September, 2018 - September, 2019*
Research Assistant

Published the paper, Self-Contained Stylization via Steganography for Reverse and Serial Style Transfer, as co-first author in WACV2020, work on style transfer and generative model with Prof. 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.