Ding-Jiun (Willy) Huang

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EDUCATION

Carnegie Mellon University (CMU) Pittsburgh, PA
M.S. in Computer Vision (GPA 4.0/4.0) Dec. 2025
Advisor: Prof. Fernando De la Torre

National Taiwan University (NTU) Taipei, Taiwan
B.S. in Computer Science and Information Engineering (GPA 4.17/4.3) Jun. 2023

RESEARCH INTERESTS

3D Reconstruction and Generation, Human Avatar, Vision for Human Fashion

PUBLICATIONS

From Blurry to Believable: Enhancing Low-quality Talking Heads with 3D Generative Priors
Ding-Jiun Huang, Yuanhao Wang, Shao-Ji Yuan, Albert Mosella-Montoro, Francisco Vicente Carrasco, Cheng Zhang, Fernando de la Torre
3DV, 2026. [project page]

ASSR-NeRF: Arbitrary-Scale Super-Resolution on Voxel Grid for High-Quality Radiance Fields Reconstruction
Ding-Jiun Huang, Zi-Ting Chou, Yu-Chiang Frank Wang, Cheng Sun
arxiv, 2024. [project page]

Consensus-Based Fault-Tolerant Platooning for Connected and Autonomous Vehicles
Tzu-Yen Tseng, *Ding-Jiun Huang*, Jia-You Lin, Po-Jui Chang, Chung-Wei Lin, Changliu Liu
IEEE Symposium on Intelligent Vehicle, 2023. [paper]

SB-VQA: A Stack-Based Video Quality Assessment Framework for Video Enhancement
Ding-Jiun Huang, Yu-Ting Kao, Tieh-Hung Chuang, YaChun Tsai, Jing-Kai Lou, and Shuen-Huei Guan
CVPR NTIRE, 2023. [paper]

RESEARCH EXPERIENCE

Carnegie Mellon University, Human Sensing Laboratory Pittsburgh, PA
Graduate Researcher, Sponsored Collaboration with Google Research 08/2024~Present
Advisor: Prof. Fernando De la Torre, Prof. Cheng Zhang, Dr. Thabo Beeler

- Enhance 3D head avatars created from low-quality head motion captures by utilizing 2D generative priors
- Propose a dynamics-aware 3D GAN inversion, utilizing both multi-view and multi-expression facial captures to synthesize 3D head avatar with high-fidelity geometry and detailed textures
- Propose a data-driven approach to generate a simulation-ready textured garment from a single clothing image through 3D-aware texture generation with diffusion models on predicted 2D sewing patterns

National Taiwan University, Vision and Learning Laboratory Taipei, Taiwan
Graduate Researcher, Collaboration with NVIDIA Research Taiwan 08/2023~06/2024
Advisor: Prof. Yu-Chiang Frank Wang, Dr. Cheng Sun

- Enhance general-scene NeRF representations built from low-resolution multi-view captures, outperforming Zip-NeRF in PSNR/SSIM and achieving superior perceptual quality
- Propose a voxel-based 3D super-resolution method to enhance NeRF scenes with only a feed-forward

National Taiwan University, Cyber-Physical Systems Laboratory Taipei, Taiwan
Undergraduate Researcher 07/2022~06/2023
Advisor: Prof. Chung-Wei Lin

- Design a fault-proof communication protocol to enhance stability of autonomous vehicles platooning
- Recover platooning affected by malicious attack with 43% reduction in system settling time over SOTA method

Arizona State University, Make Programming Simple Laboratory Tempe, AZ
Undergraduate Researcher, Remote collaboration 07/2022~06/2023

- Explore motion planning algorithms for autonomous vehicles that fits b-spline curves to predict waypoints of vehicles, effectively avoiding possible collisions in a multi-lane highway scenario

WORK EXPERIENCE

KKCompany, Advanced Research Center Taipei, Taiwan
Research Intern 07/2022~06/2023

- Build an automatic pipeline to enhance low-quality film content using video super-resolution and interpolation
- Explore real-time video super-resolution in an online streaming scenario
- Propose SB-VQA, a quality assessment method for videos processed by deep learning enhancement methods

TECHNICAL SKILLS

C/C++, CUDA, Pytorch, Python, Tensorflow, JAX, OpenCV, MATLAB, Unity, Blender

RELEVANT COURSEWORK

Carnegie Mellon University: Advanced Computer Vision, Human Robot Interaction, Image Synthesis, Visual Learning and Recognition
National Taiwan University: Deep Learning for Computer Vision, Computer Graphics, Deep Learning for Human Language Processing, Computer Architecture, Algorithm Design and Analysis, Systems Programming, Network Administration and System Administration