Yi-Chuan Huang

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Education

National Yang Ming Chiao Tung University (NYCU) Hsinchu, Taiwan
Ph.D. in Computer Science — Advisor: Yu-Lun Liu; GPA: 3.98/4.3 *Sep. 2023 – Present*
Courses: Deep Learning (A), Optimization Algorithms (A), Machine Learning for Signal Processing (A+), Edge AI (A+), Operating System (A), Image Manipulation Techniques & Visual Effects (A+), Artificial Intelligence (A).

National Yang Ming Chiao Tung University (NYCU) Hsinchu, Taiwan
M.S. in Applied Art — Thesis: Personalized Chinese Handwriting Font Synthesis Method *Sep. 2021 – Jun. 2023*

Publications

GaMO: Geometry-aware Multi-view Diffusion Outpainting for Sparse-View 3D Reconstruction
***Yi-Chuan Huang**, Hao-Jen Chien, Chin-Yang Lin, Yin-Huan Chen, Yu-Lun Liu. (Under Submission)*

- GaMO reformulates sparse-view 3D reconstruction as **multi-view outpainting**, expanding the field of view with **geometry-aware diffusion** to achieve consistent, high-quality reconstructions efficiently from very few input views.
- *Project Page:* https://yichuanh.github.io/GaMO/

Voxify3D: Pixel Art Meets Volumetric Rendering
***Yi-Chuan Huang**, Jie-Wen Chan, Hao-Jen Chien, Yu-Lun Liu. (arXiv 2025)*

- Voxify3D is a differentiable two-stage method that converts 3D meshes into stylized **voxel art** with discrete palette control, preserving semantic structure via **multi-view pixel-art supervision** and **CLIP-guided optimization**.
- *Project Page:* https://yichuanh.github.io/Voxify-3D/

Splannequin: Freezing Monocular Mannequin-Challenge Footage with Dual-Detection Splatting
*Hao-Jen Chien, **Yi-Chuan Huang**, Chung-Ho Wu, Wei-Lun Chao, Yu-Lun Liu. (WACV 2025)*

- Splannequin freezes dynamic Gaussian splats into crisp 3D scenes from monocular videos by anchoring unstable artifacts to more reliable temporal states.
- *Project Page:* https://chien90190.github.io/splannequin/

AuraFusion360: Augmented Unseen Region Alignment for Reference-based 360° Unbounded Scene Inpainting
Chung-Ho Wu, Yang-Jung Chen*, Ying-Huan Chen, Jie-Ying Lee, Bo-Hsu Ke, Chun-Wei Tuan Mu, **Yi-Chuan Huang**, Chin-Yang Lin, Min-Hung Chen, Yen-Yu Lin, Yu-Lun Liu. (CVPR 2025)*

- Developed a 360° unbounded scene inpainting framework combining **diffusion priors** and **depth-aware 3D Gaussian Splatting** for geometrically consistent object removal.
- *Project Page:* https://kkennethwu.github.io/aurafusion360/

Projects

Knowledge Distillation for Parameter-Efficient Large Language Models (*Code*)

- Distilled **LLaMA-3.2-3B-Instruct** into **LLaMA-3.2-1B-Instruct** using KL/MSE loss on WikiText-2, achieving **11.72** perplexity.

Layered Vectorization of Natural Images for Editable SVG Graphics (*Code*)

- Vectorized natural images into **layered, editable SVGs** with structure-preserving decomposition for AI-assisted design.

Experience & Honors

Teaching Assistant, *Image and Video Generation* (NYCU) *Sep. 2025*
Reviewer, Pacific Graphics 2025 (PG 2025) *Jun. 2025*
Outstanding Teaching Assistant, *Signals and Systems* (Award, NYCU) *Sep. 2024*
Ph.D. Qualification Passed — Ph.D. Candidate (NYCU) *Jun. 2024*

Skills

Programming: Python, PyTorch, CUDA (Basic), C, C++, HTML, JS
Tools: OpenCV, OpenGL, Open3D, Blender, COLMAP, Unity, Linux

Research Interests

Deep Learning, Generative Modeling, 3D Vision, Neural Rendering, Diffusion Models, and Multi-View Reconstruction.