Chung-Ho (Kenneth) Wu

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Education

National Yang Ming Chiao Tung University Hsinchu, Taiwan

M.S. *in Multimedia Engineering. Advisor: Yu-Lun Liu.* *Sep 2023 – Present*

Courses: XR Camp, Deep Learning, Perception and Decision Making in Intelligent Systems, Image Processing, Video streaming and tracking, Computer Animation and Special Effects.

National Yang Ming Chiao Tung University Hsinchu, Taiwan

B.S. *in Computer Science.* *Sep 2019 – June 2023*

Publications

Fast Few-shot NeRF under review

Chung-Ho Wu, Chin-Yang Lin, Changhan Yeh, Alex Yen, Cheng Sun, Yu-Lun Liu.

- 3D scene reconstruction from sparse input images. Achieved state-of-the-art quality, while also demonstrated faster training times and did not require any pre-trained priors such as monocular depth.

Experiences

3D Modeling Intern May 2023 – Aug 2023

ITRI *Python, Pytorch, nerfstudio*

- Perform high-quality 3D reconstruction of products for online shopping with nerfstudio API.
- Conducted research on state-of-the-art techniques for fast training and real-time rendering of Neural Radiance Fields (NeRF).
- Transformed NeRF-based reconstructions into meshes and textures for real-time rendering, incorporating spherical harmonic parameters.

Projects

PDM Project: Perception and Decision Making in Intelligent Systems Project Sep 2023 - Present

- This is the semester project for NYCU PDM-F23, comprising four assignments: reconstructing an indoor scene from a sequence of images, creating a 3D semantic map, developing an indoor robot navigation system, and establishing a robot manipulations framework.
- And a final project tackles the Habitat Rearrangement Challenge 2022 organized by NeurIPS. It emphasizes applying knowledge from the preceding four assignments, particularly in mobile manipulation, low-level control, and task planning.

FS-NeRF: Fast Sparse Input Neural Radiance Field w/ Visibility Priors July 2023 - Aug 2023

- Led the development of FS-NeRF, a model excelling in synthesizing novel views with limited data and effectively addressed overfitting in few-shot scenarios by leveraging pre-calculated visibility priors.
- Incorporated monocular depth into the model, enhancing hallucination abilities for generating views, even in regions not observed in any training views.
- Achieved accelerated training times while maintaining comparability to state-of-the-art methods by substituting Voxel for MLP in NeRF.

Under the lake: VR Horror Immersive Experience (XR-Showcase Silver Award) Apr 2023 - June 2023

- Modeling real campus scenes as point clouds, incorporating long-standing ghost stories on campus, and utilizing VR devices to create an immersive experience.
- Using the SteamVR API, enable players to navigate within the VR space using HTC Vive Pro controllers.
- Developed C# scripts for Unity to initiate scene mechanisms.

Expiration Reminder Service Oct 2022 - Dec 2022

- Provide an expiration reminder service, which could remind the user of the expiration and detect the usage rate, by connecting an IoT box with an iOS app using ThingSpeak.
- Construct the IoT box by Arduino and 3D printing, and detect the item in the box using ML skills to update the corresponding data on ThingSpeak timely.

CS Union Loyalty Card Dec 2020 - Feb 2021

- A reward system using Line Bot API to boost the activities participation. Our program has reached more than 130 people in the CS department.

Programming Skills

Programming Languages: C/C++, C#, Python, SQL, Swift.

Tools: Git, Docker, Linux, Shell Script, Pytorch, TensorFlow, OpenCV, OpenGL, Unity.