CHAOYI ZHOU

chaoyiz@clemson.edu
100 McAdanms Hall, Clemson, SC, 29634 (206)-734-9609

EDUCATION

Clemson University, US *Jan. 2024 - Present*
Ph.D in Computer Science
Advisor: Prof. Siyu Huang

University of Southern California (USC), US *Jan. 2021 - Dec. 2022*
M.S. in Computer Science(General)
Advisor: Prof. Yajie Zhao

- GPA: 3.60/4.00

Nanjing University Of Posts And Telecommunications (NUPT), China *Sep. 2016 - June. 2020*
B.S. in Computer Science and Technology

- GPA: 3.69/5.00

PUBLICATION

-Wu, G., Zhou, J., Yang, J., Zhou, C., and Xiong, Y., 2021. TableRobot: an automatic annotation method for heterogeneous tables. Procedia Computer Science, 187, pp.432-439.
- X. Wang , C. Zhou , X. Xub ,* "Application of C4.5 Decision Tree for Scholarship Evaluations", Proceedings of the 10th International Conference on Ambient Systems, Networks and Technologies (ANT), Science Direct Procedia Computer Science, April 29-May 2, 2019, Leuven, Belgium.

RESEARCH EXPERIENCE

3D Reconstruction, Enhancement and Generation *Jan. 2024 - Present*
Graduate Research Assistant
Supervisor: Dr. Siyu Huang, Assistant Professor, Clemson University
- Introduced a novel dataset construction strategy that captures artifacts due to information loss in the reconstruction process.
- Integrated attention mechanisms to incorporate neighboring views as conditions into the training of diffusion models, enabling not only photo-realistic but also view consistent generation.
- Proposed a more fair evaluation pipeline for 3D Gaussian Splatting.
- Proposed a view consistency based strategy for optimizing 3D Gaussian Splatting.

Outdoor Scene Reconstruction and Understanding *Jun. 2023 - Dec. 2023*
Graduate Research Assistant
Supervisor: Dr. Rongjun Qin, Associate Professor, Ohio State Univeristy
- Developed interactive visualization software for the IARPA outdoor scene reconstruction challenge, facilitating intuitive analysis of complex spatial data.
- Developed a highly robust and precise Structure-from-Motion system applied for the IARPA outdoor scene reconstruction challenge, especially resolving challenging cases effectively.
- Engineered an affordable SDK for sky cameras, making it possible for budget-friendly devices to accurately reconstruct the sky's HDRI and analyze sky radiance values.
- Implemented deep learning models to simulate shading on outdoor scene objects based on the sky's radiance, thus recovering the environment's true RGB values.

Aerial to Ground Novel View Generation *May. 2022 - Jun. 2023*
Student Researcher, Transitioned to Full-Time Computer Vision Engineer after Graduation
Supervisor: Dr. Yajie Zhao, Research Assistant Professor and Director of Vision and Graphics Lab, Institute of

Creative Technologies, USC
- Utilized Unreal Engine 5 to construct comprehensive synthetic and real outdoor scene datasets, accompanied by the development of custom rendering plugins to enhance data realism and diversity.
- Implemented a conditional generative model for estimating 3D-flow from single-view inputs, enabling view synthesis through forward warping.
- Enhanced 3D-flow methodology by integrating Neural Radiance Fields (NeRF), improving the generation of novel views from single-view inputs with added depth information and geometric guidance.
- Applied Diffusion models and Generative Adversarial Networkss for high-resolution image inpainting and style transfer.

Mechanical System Defect Detection and Tracking *Feb. 2022 - May. 2022*
Student Researcher
Supervisor: Dr. Preetham Aghalaya Manjunatha, SHM Lab, University of Southern California
- Developed a multi-process program for evaluating traditional point cloud registration methods, enhancing computational efficiency and accuracy.
-Built deep learning models for feature detection and registration of point clouds, significantly improving matching precision.
- Quantitatized and localized the change for the object after performing transfer learning.

Monocular Depth Estimation with Post Optimization *Aug. 2021 - Nov. 2021*
Research Assistant
Supervisor: Assistant Professor, Dr. Zhaoxin Li, Institute of Computing Technology, Chinese Academy of Sciences
- Implemented a two branch Multi-scale Residual Pyramid model predict the corresponding depth and surface normal based on a single view input .
- Leveraged surface normals to further refine depth estimates, enhancing result accuracy.

3D Motion Detection in Big Outdoor Environment *Aug. 2020 - Dec. 2020*
Research Assistant
Supervisor: Assistant Professor, Dr. Zhaoxin Li, Institute of Computing Technology, Chinese Academy of Sciences
- Estimated the camera poses using Structure From Motion(SFM) from the video stream.
- Localized the target image to perform the 3D object detection

AWARD

- NYIT Presidential and Dean's Honors List, granted by New York Institute of Technology

TECHNICAL SKILLS

Programming:	**Python, Java, C#, C++**
Software & Tools:	**Computer Visions: Opencv, Pointcloud Library(PCL), Open3d**
	Machine learning: Pytorch, torchvision, Numpy, Pandas
	Simulation: Linux, Unreal Engine, Unity, Airsim