TAO HU

taohu@umd.edu ◇ Homepage: taohuumd.github.io

RESEARCH INTERESTS

Neural Rendering, 3D Reconstruction, 3D Content Creation, Digital Human, 3D Motion Capture, Animation.

EDUCATION

University of Maryland, College Park. *2018 – 2022*
Ph.D. student in CS Department, working with Prof. Matthias Zwicker.
Research Topic: Dense 3D Reconstructions from Sparse Visual Data. GPA: 3.86/4.0

Beijing Institute of Technology, Beijing, R.P.China. *Sep. 2011 – 2018*
B.Eng., M.S. (Digital Performance) at School of Software. Advisor: Prof. Gangyi Ding.

RESEARCH EXPERIENCE

Postdoc Research Fellow, NTU, Singapore. *Jun. 2023 - now*
Mentor: Prof. Ziwei Liu
Topic: 3D Human generation, 4D motion modeling.

Intern with Intelligent Creation Lab, ByteDance Inc USA, Remote. *Dec. 2021 - Jul. 2022*
Mentor: Dr. Hongyi Xu, Dr. Linjie Luo
Topic: Neural rendering for human avatars.

Intern with 3DV Lab at Tshinghua University, China. *Apr. 2021 - Nov. 2021*
Mentor: Prof. Yebin Liu.
Topic: Neural rendering for human avatars.

Intern with GVV group at Max Planck Institute for Informatics, Germany. *Mar. 2020 - Sep. 2020*
Mentor: Prof. Christian Theobalt, Graphics, Vision & Video group at MPII.
Topic: Neural rendering for human avatars in egocentric telepresence system.

Intern with Speech group at Microsoft Research Asia (MSRA), China. *Jun. 2017 - Nov. 2017*
Mentor: Dr. Kai Chen
Topic: Optimize deep neural networks for Optical Character Recognition (OCR) in the Wild.

SELECTED PUBLICATIONS & MANUSCRIPTS

Tao Hu, Fangzhou Hong, Ziwei Liu. SurMo: Surface-based 4D Motion Modeling for Dynamic Human Rendering. *Conference on Computer Vision and Pattern Recognition (CVPR), 2024.*

Tao Hu, Hongyi Xu, Linjie Luo, Tao Yu, Zerong Zheng, He Zhang, Yebin Liu, Matthias Zwicker. HVTR++: Image and Pose Driven Human Avatars using Hybrid Volumetric-Textural Rendering. *IEEE Transactions on Visualization and Computer Graphics (TVCG), 2023.*

Shoukang Hu, Fangzhou Hong, **Tao Hu**, Liang Pan, Haiyi Mei, Weiye Xiao, Lei Yang, Ziwei Liu. Humanliff: Layer-wise 3d human generation with diffusion model. *Technical Report, 2024, 2023.*

Tao Hu, Tao Yu, Zerong Zheng, He Zhang, Yebin Liu, Matthias Zwicker. HVTR: Hybrid Volumetric-Textural Rendering for Human Avatars. *International Conference on 3D Vision (3DV)*, 2022.

Tao Hu, Kripasindhu Sarkar, Lingjie Liu, Matthias Zwicker, Christian Theobalt. EgoRenderer: Rendering Human Avatars from Egocentric Camera Images. *International Conference on Computer Vision (ICCV)*, 2021.

Tao Hu, Geng Lin, Zhizhong Han, Matthias Zwicker. Learning to Generate Dense Point Clouds with Textures on Multiple Categories. *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2021.

Tao Hu, Zhizhong Han, Matthias Zwicker. 3D Shape Completion with Multi-View Consistent Inference. *AAAI Conference on Artificial Intelligence (AAAI)*, 2020. (Oral)

Tao Hu, Zhizhong Han, Abhinav Shrivastava, Matthias Zwicker. Render4Completion: Synthesizing Multi-View Depth Maps for 3D Shape Completion. *ICCV Geometry Meets Deep Learning Workshop*, 2019. (Oral)

Tao Hu, Gangyi Ding, Lijie Li, Longfei Zhang. *A Parallel Video Player Plugin for CryEngine*.

- Highlights of Sciencepaper. Chinese Journal, May 2016.
- Software Copyright (2016SR010412)

TEACHING

Teaching Assistant, Dept. of Computer Science, UMD.

CMSC425 Game Programming (Prof. Roger Eastman)	Fall 2019
CMSC425 Game Programming (Prof. Roger Eastman)	Spring 2019
CMSC 216 Introduction to Computer Systems (Mr. Laurence Herman)	Fall 2018

REFEREE

Conference Reviewer:

Conference on Computer Vision and Pattern Recognition (CVPR) 2023, 2024

International Conference on Computer Vision (ICCV) 2023

European Conference on Computer Vision (ECCV) 2022

International Conference on 3D Vision (3DV) 2022.

Winter Conference on Applications of Computer Vision (WACV) 2022, 2023, 2024

Journal Reviewer:

Image and Vision Computing

Pattern Recognition Letters

Computer Graphics Forum

SELECTED AWARDS & HONORS

Graduate National Scholarship (Top 2%), Ministry of Education of China	2016
Undergraduate National Scholarship (Top 2%), Ministry of Education of China	2014

TECHNICAL SKILLS

Primary Programming Languages: C/C++, Python.

Other Languages: C#, SIMD, Java, PHP, JavaScript, MATLAB

Software Libraries: Blender, OpenGL, OpenGL ES, PyTorch.