Zheng Dong (董政)

Ph.D. Student at Zhejiang University

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Education

Department of Computer Science, Zhejiang University (ZJU)   **Hangzhou, China**

Ph.D Student   *September 2019 – Present*

- Advisor: Prof. Weiwei Xu and Prof. Rynson W.H. Lau (City University of Hong Kong)
- Lab: State Key Laboratory of CAD&CG, Zhejiang University

Department of Computer Science, Central South University (CSU)   **Changsha, China**

B.Eng   *September 2015 – July 2019*

- GPA: 91.39/100

Skills

Programming: Python (PyTorch /Tensorflow), C/C++ (OpenGL /CUDA ...), JavaScript, Matlab, Latex ...
Software: Premiere Pro, Blender, Photoshop, Qt ...
Language: Chinese (native), English (working skilled).

Research Projects

My research interests mainly lie in **3D vision** and **2D image processing**, especially for **3D human modeling** and **image decomposition**. I work on research topics, including **image-based 3D human reconstruction**, **3D human rendering**, and **image reflection removal**. Up to now, I have published three papers in top-tier conferences, including ICCV / NeurIPS / SIGGRAPH Asia, and one paper has been accepted for Spotlight presentation. Here I list some of my research projects:

Image-based 3D human rendering | 2022 - present

- Proposed a generalizable human rendering approach based on neural radiance fields from sparse (*e.g.*, 4) RGBD inputs; synergized occupancy and radiance fields conditioned on a depth denoising process and its resulting pixel-aligned RGBD features.
- Implemented an applicable system that incorporates a tree-based structure, a voxel denoising scheme, a neural blending-based ray interpolation approach, and a parallel computing pipeline. It creates free-view rendering results in 1K resolution at 10 fps on average. Published one SIGGRAPH Asia paper → ⌗ **Github**.

Image-based 3D human reconstruction | 2021 - 2022

- Participated in the football field player reconstruction project at GalaSport Inc; realized 3D pose detection and SMPL model reconstruction for 22 players on the football field based on the VoxelPose (ECCV2020).
- Proposed a novel 3D human reconstruction pipeline from sparse (*e.g.*, 3) RGBD inputs; formulated a multi-task representation to denoise raw depths and predict body occupancy field in an implicit manner; expressed the full-body implicit function in a piece-wise manner to reconstruct high-frequency facial details; fused body and face occupancy fields in implicit space; published one NeurIPS paper → ⌗ **Slide**.

Image Reflection Removal | 2020 - 2021

- Aiming at the undesirable reflections in the real captured images, we proposed a novel learning-based method to leverage the Laplacian kernel to emphasize the strong reflection for predicting a reflection confidence map and designed a recurrent network to refine removal results progressively; published one ICCV paper → ⌗ **Project**.

Publication

2023:
Zheng Dong, Ke Xu, Yaoan Gao, Qilin Sun, Hujun Bao, Weiwei Xu*, Rynson W.H. Lau
"SAILOR: Synergizing Radiance and Occupancy Fields for Live Human Performance Capture"
ACM Trans. on Graphics, 42(6), (Proc. ACM SIGGRAPH Asia 2023)

2022:
Zheng Dong, Ke Xu, Ziheng Duan, Hujun Bao, Weiwei Xu*, Rynson W.H. Lau
"Geometry-aware Two-scale PIFu Representation for Human Reconstruction"
Annual Conference on Neural Information Processing Systems (NeurIPS) 2022 (**Spotlight**).

2021:
Zheng Dong, Ke Xu, Yin Yang, Hujun Bao, Weiwei Xu*, Rynson W.H. Lau
"Location-aware Single Image Reflection Removal"
IEEE International Conference on Computer Vision (ICCV) 2021.

DISTINCTIONS

2020, 2022-2023:
Excellent Postgraduate Student Award, Zhejiang University.

2019:
Outstanding Graduate Student, Central South University.

2016:
National Scholarship, Central South University.

ACADEMIC SERVICE

Reviewer: IJCV, NeurIPS, CVPR, CAVW, etc