

# ZHENG DONG (董政)

Researcher at Zhejiang Sci-Tech University

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## BACKGROUND

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**School of Artificial Intelligence, Zhejiang Sci-Tech University (ZSTU)**

**Hangzhou, China**

*Research Fellow (特聘研究员)*

*April 2025 – Present*

**State Key Laboratory of CAD&CG, Zhejiang University (ZJU)**

**Hangzhou, China**

*Ph.D Degree (D.Eng)*

*September 2019 – March 2025*

- Advisor: Prof. Weiwei Xu and Prof. Rynson W.H. Lau (City University of Hong Kong)
- Outstanding Graduate Student

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

**Changsha, China**

*Bachelor's Degree (B.Eng)*

*September 2015 – July 2019*

- GPA: 91.39/100
- National Scholarship

## ACADEMIC SERVICE

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**Reviewer:** SIGGRAPH, CVPR, ICCV, NeurIPS, IJCV, TVCG, CAVW, etc

## RESEARCH PROJECTS

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My research interests mainly lie in **3D/4D vision** and **2D image processing**, especially for **3D/4D human-scene modeling** and **image decomposition**. I work on research topics, including **image-based 3D human reconstruction**, **dynamic human-scene modeling**, and **image reflection/flare removal**. Up to now, I have published 5 papers in top-tier conferences (4 papers as first author), including **ICCV 2021 / NeurIPS 2022 / SIGGRAPH Asia (Journal Track, 2023-2024) / SIGGRAPH (Journal Track, 2025)**, and one paper has been accepted for Spotlight presentation. Here I list some of my research projects:

### **Human-centric dynamic scene modeling** | 2024 - present

- Proposed a 4D-scene reconstruction method based on dynamic Gaussian Splatting, which supports streaming and online playback of reconstructed volumetric video. This method divides the input videos into multiple groups of Gaussian (GOG), where each group consists of static / dynamic points. The deformation of each dynamic point is modeled via temporal offsets of its attributes. This method also applies quantization on Gaussian attributes and H.265 encoding on deformation offsets, to support real-time streaming. Published one **SIGGRAPH** paper (2025).

### **Image-based 3D human reconstruction** | 2021 - 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 (2023) → 🔍 **Project**.
- Proposed a hybrid generalizable human representation (PGH), which regresses human surface points and parameterizes their geometry/texture features as 2D Gaussian surfels via a surface implicit function and a Gaussian implicit function, respectively, and then uses surfel splatting and blending-based appearance enhancement to create geometrically and photometrically correct novel-view videos. Published one **SIGGRAPH Asia** paper (2024) → 🔍 **Project**.
- 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 (2022) → 🔍 **Project**.

## Image Reflection / Flare Removal | 2020 - Present

- 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 (2021) → [🔗](#)  
**Project.**

## PUBLICATION

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**2025:**

### **4D Gaussian Video with Motion Layering**

Pinxuan Dai, Peiquan Zhang, **Zheng Dong**, Ke Xu, Yifan Peng, Dandan Ding, Yujun Shen, Yin Yang, Xinguo Liu, Rynson Lau, Weiwei Xu\*

ACM Trans. on Graphics, (Proc. ACM SIGGRAPH 2025)

**2024:**

### **Gaussian Surfel Splatting for Live Human Performance Capture**

**Zheng Dong**, Ke Xu, Yaoan Gao, Hujun Bao, Weiwei Xu\*, Rynson W.H. Lau

ACM Trans. on Graphics, 43(6), (Proc. ACM SIGGRAPH Asia 2024)

**2023:**

### **SAILOR: Synergizing Radiance and Occupancy Fields for Live Human Performance Capture**

**Zheng Dong**, Ke Xu, Yaoan Gao, Qilin Sun, Hujun Bao, Weiwei Xu\*, Rynson W.H. Lau

ACM Trans. on Graphics, 42(6), (Proc. ACM SIGGRAPH Asia 2023)

**2022:**

### **Geometry-aware Two-scale PIFu Representation for Human Reconstruction**

**Zheng Dong**, Ke Xu, Ziheng Duan, Hujun Bao, Weiwei Xu\*, Rynson W.H. Lau

Annual Conference on Neural Information Processing Systems (NeurIPS) 2022 (**Spotlight**).

**2021:**

### **Location-aware Single Image Reflection Removal**

**Zheng Dong**, Ke Xu, Yin Yang, Hujun Bao, Weiwei Xu\*, Rynson W.H. Lau

IEEE International Conference on Computer Vision (ICCV) 2021.

## DISTINCTIONS

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**2025:**

Outstanding Graduate Student, Zhejiang University (浙江大学优秀毕业生).

**2020, 2022-2023:**

Excellent Postgraduate Student Award, Zhejiang University (浙江大学优秀研究生).

**2019:**

Outstanding Graduate Student, Central South University (中南大学优秀毕业生).

**2016:**

National Scholarship, Central South University (国家奖学金).