Ruizhi Shao

shaorz20@mails.tsinghua.edu.cn | https://dsaurus.github.io/saurus/ | Beijing, China

Education

Tsinghua University *Beijing, China*

PhD in Artificial Intelligence, supervised by Yebin Liu Sep. 2020 - Now

Nankai University *Tianjin, China*

BE in Computer Science and Technology Sep. 2016 - Jun. 2020

Selected Research

HumanNorm: Learning Normal Diffusion Model for High-quality and Realistic 3D Human Generation *2023*

[New] Text-to-3D human generation with precision comparable to 3D Scanning. **Re-posted by AK.**

Project page: https://humannorm.github.io/

Control4D: Dynamic Portrait Editing by Learning 4D GAN from 2D Diffusion-based Editor *2023*

[New] High-quality and temporal-consistent 4D portrait editing. **Posted by AK and selected as daily papers**,

Project page: https://control4darxiv.github.io/

ThreeStudio: A Modular Framework for Diffusion-guided 3D Generation *2023*

Co-author and contributor of ThreeStudio, **Github stars 3k**.

Tensor4D: Efficient Neural 4D Decomposition for High-fidelity Dynamic Reconstruction and Rendering *2023*

An efficient yet effective approach to dynamic scene modeling, high-quality dynamic reconstruction and rendering from sparse-view camera rigs or even a monocular camera, accepted as **CVPR Highlight**.

DiffuStereo: High-Quality Human Reconstruction via Diffusion-based Stereo Using Sparse Cameras *2022*

The first method to introduce diffusion models into stereo and human reconstruction. The geometry quality of reconstruction in sparse multi-views is state-of-the-art, accepted as **ECCV ORAL**.

Awards and Honors

2019 **Contest**: Silver Medal in "ACM/ICPC Asia-East Continent Final Contest".
2019 **Scholarship**: "Innovation Award of Science and Technology, Nankai University".
2018 **Scholarship**: "China National Scholarship".
2018 **Contest**: Second Prize in "Mathematical Contest in Modeling".
2018 **Contest**: Silver Medal in "ACM/ICPC Asia-East Continent Final Contest".

Invited Talk

China3DV *2023*

Tensor4D: Efficient Neural 4D Decomposition for High-fidelity Dynamic Reconstruction and Rendering.

TechBeat *2022*

DoubleField: Bridging the Neural Surface and Radiance Fields for High-fidelity Human Reconstruction and Rendering.

Publications

[1] **Ruizhi Shao**, Zerong Zheng, Hanzhang Tu, Boning Liu, Hongwen Zhang, Yebin Liu. "Tensor4D : Efficient Neural 4D Decomposition for High-fidelity Dynamic Reconstruction and Rendering", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2023. Accepted as **Highlight**.

[2] Hongwen Zhang, Siyou Lin, **Ruizhi Shao**, Yuxiang Zhang, Zerong Zheng, Han Huang, Yandong Guo, Yebin Liu."CloSET: Modeling Clothed Humans on Continuous Surface with Explicit Template Decomposition", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2023.

[3] Tiansong Zhou, Jing Huang, **Ruizhi Shao**, Kun Li. "HDhuman: High-quality Human Novel-view Rendering from Sparse Views", *IEEE Transactions on Visualization and Computer Graphics* (**TVCG**), 2023.

[4] **Ruizhi Shao**, Liliang Chen, Zerong Zheng, Hongwen Zhang, Yuxiang Zhang, Han Huang, Yebin Liu. "FloRen: Real-time High-quality Human Performance Rendering via Appearance Flow Using Sparse RGB Cameras", **SIGGRAPH Asia**, 2022.

[5] **Ruizhi Shao**, Zerong Zheng, Hongwen Zhang, Jingxiang Sun, Yebin Liu. "DiffuStereo: High Quality Human Reconstruction via Diffusion-based Stereo Using Sparse Cameras", *European Conference on Computer Vision* (**ECCV**), 2022. Accepted as **Oral**.

[6] Siyou Lin, Hongwen Zhang, Zerong Zheng, **Ruizhi Shao**, Yebin Liu. "Learning Implicit Templates for Point-Based Clothed Human Modeling", *European Conference on Computer Vision* (**ECCV**), 2022.

[7] **Ruizhi Shao**, Hongwen Zhang, He Zhang, Mingjia Chen, Yanpei Cao, Tao Yu, Yebin Liu."DoubleField: Bridging the Neural Surface and Radiance Fields for High-fidelity Human Reconstruction and Rendering", *IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR**), 2022.

[8] **Ruizhi Shao***, Gaochang Wu*, Yuemei Zhou, Ying Fu, Lu Fang, Yebin Liu (* equal contribution). "LocalTrans: A Multiscale Local Transformer Network for Cross-Resolution Homography Estimation", *International Conference on Computer Vision* (**ICCV**), 2021.

[9] Yang Zheng*, **Ruizhi Shao***, Yuxiang Zhang, Tao Yu, Zerong Zheng, Qionghai Dai, Yebin Liu (* equal contribution). "DeepMultiCap: Performance Capture of Multiple Characters Using Sparse Multiview Cameras", *International Conference on Computer Vision* (**ICCV**), 2021.

[10] Kun Li, Yali Mao, Yunke Liu, **Ruizhi Shao**, Yebin Liu. "Full-Body Motion Capture for Multiple Closely Interacting Persons", *Graphical Models*, 2020.

Teaching

Teaching assistant of Data Structure, AU30250203 *2021*

Services

- Reviewers: **TPAMI, ICCV, ECCV, SIGGRAPH**
- Contributor of **threestudio-project/ThreeStudio**: *a unified framework for 3D content creation from text prompts, single images, and few-shot images, by lifting 2D text-to-image generation models*.

Technical Skills

Programming C++, Python, Taichi, Java, JavaScript, HTML/CSS

Software & Typesetting Blender, Photoshop, Premiere, LaTeX