Lizhen Wang 王立祯

Ph.D. Student at Tsinghua University

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Research Interest:3D face/body reconstruction, face tracking, styleGAN/NeRF-based portrait avatar.
I expect to graduate in July, 2023. Now I am looking for a job related to 3D computer vision.

EDUCATION

Tsinghua University, Ph.D. student *Aug. 2018- Now*

Major in Automatic Control Theory, the Department of Automation

- GPA: 3.7/4.0
- Supervisor: Prof. Yebin Liu
- Teaching assistant of Data Structure course
- Second-class scholarship of Tsinghua University

Tsinghua University, Bachelor of Science *Aug. 2014- Jul. 2018*

Major in Science of Mathematics and Physics, the Department of Physics

- GPA: 89/100
- Academic Excellence Scholarship of Tsinghua University
- Social Work Excellence Scholarship of Tsinghua University
- First Prize of Hebei Province in Chinese Physics Olympiad in senior high school

EXPERIENCES

Ant Group | Alipay Business Line, IoT Division *May. 2020- Jul. 2021 & Jul. 2022- Sep. 2022*

Research Internship

Mentor: Dr. Chenguang Ma

- Real-time 3D face tracking using a single RGB camera or RGB-D camera
- FaceVerse in publications: building the high-fidelity Chinese 3D face morphable Model (3DMM) using a hybrid dataset.

The University of Texas at Austin | Graphics & AI Lab *Jul. 2017- Sep. 2017*

Summer Internship

Advisor: Prof. Qixing Huang

- Manifold CNN structure for 3D objects.

PUBLICATIONS

[1] **Lizhen Wang**, Xiaochen Zhao, Yuxiang Zhang, Hongwen Zhang, Tao Yu and Yebin Liu
StyleAvatar: Real-time Photo-realistic Portrait Avatar from a Single Video

ACM SIGGRAPH 2023 Conference Proceedings

[2] **Lizhen Wang**, Zhiyuan Chen, Tao Yu, Chenguang Ma, Liang Li and Yebin Liu
FaceVerse: a Fine-grained and Detail-controllable 3D Face Morphable Model from a Hybrid Dataset
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2022

[3] **Lizhen Wang**, Xiaochen Zhao, Tao Yu and Yebin Liu
NormalGAN: Learning Detailed 3D Human from a Single RGB-D Image
European Conference on Computer Vision (ECCV), 2020

[4] Jingxiang Sun, Xuan Wang, **Lizhen Wang**, Xiaoyu Li, Yong Zhang, Hongwen Zhang, Yebin Liu.
Next3D: Generative Neural Texture Rasterization for 3D-Aware Head Avatars
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2023

[5] Jingxiang Sun, Xuan Wang, Yichun Shi, **Lizhen Wang**, Jue Wang and Yebin Liu
IDE-3D: Interactive Disentangled Editing for High-Resolution 3D-aware Portrait Synthesis
SIGGRAPH Asia (Journal Track), 2022

[6] Shi Yan, Chenglei Wu, **Lizhen Wang**, Feng Xu, Liang An, Kaiwen Guo, and Yebin Liu
DDRNet: Depth Map Denoising and Refinement for Consumer Depth Cameras Using Cascaded CNNs
European Conference on Computer Vision (ECCV), 2018

[7] Yuelang Xu, **Lizhen Wang**, Xiaochen Zhao, Hongwen Zhang and Yebin Liu.
AvatarMAV: Fast 3D Head Avatar Reconstruction Using Motion-Aware Neural Voxels
ACM SIGGRAPH 2023 Conference Proceedings

[8] Yuelang Xu, Hongwen Zhang, **Lizhen Wang**, Xiaochen Zhao, Han Huang, Guojun Qi and Yebin Liu. *LatentAvatar: Learning Latent Expression Code for Expressive Neural Head Avatar*
ACM SIGGRAPH 2023 Conference Proceedings

PROJECTS EXPERIENCES

3D face morphable model—FaceVerse and 3D face reconstruction

•FaceVerse is a 3D face morphable model from a large face RGB-D dataset and high-fidelity 3D head models.

• We also present a single-image face 3D reconstruction algorithm based on FaceVerse. **Github**: https://github.com/LizhenWangT/FaceVerse

Real-time face tracking using a single RGB/RBG-D camera

• Face tracing using differentiable rendering. The code is optimized to real-time using Jittor & CUDA.

• The expression-related blendshapes are fitted to the 52 ARKit blendshapes. So we can also drive some animatable head model using this algorithm.

Demo: https://github.com/LizhenWangT/FaceVerse **Fig.4**

2D/3D realistic head avatar (face reenactment)

• Real-time 2D head avatar from a single RGB video using a StyleGAN-based network.

• 3D neural head avatar from a single view or multi-view RGB video using NeRF.

Github: https://github.com/LizhenWangT/StyleAvatar

3D human body reconstruction from a single RGB-D image

• Data-driven 3D body reconstruction from a single RBG-D image, we optimize the body geometry

using the normal map with a GAN network.
Github: https://github.com/LizhenWangT/NormalGAN

Audio-driven Digital Face Generation

•Utilizing voice predictions from the FaceVerse model to generate expression parameters, which are then rendered into 3DMM images and applied to the real-time high-fidelity digital face generation project StyleAvatar.

LEADERSHIP AND ACTIVITIES

Student Union, Department of Physics **|** Vice President *Jul 2016 – June 2017*

·Responsible for the life rights and interests of students in our department

·Responsible for the financial management and materials management of the student union

SKILLS

Languages: Chinese, English, Japanese
Programming Languages: C&C++ (OpenGL/CUDA), Python, Java, Matlab
Deep Learning Platforms: PyTorch, TensorFlow

Solid mathematics and physics knowledge
Solid computer programming skills
Github：https://github.com/LizhenWangT