Yajie Zhao

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Research Interests

I'm currently leading the research of Vision and Graphic Lab, the Institute for Creative Technologies of USC. We are aiming at making the production quality virtual human and environment easily accessible to the whole community. My research interests are high resolution human face/body/scene 3D capturing, reconstruction, representation, synthesizing, neural rendering and human/scene related applications in VR/AR .

Personal Webpage

https://www.yajie-zhao.com/

Work Experience

Director, Vision & Graphics Lab   June 2024 to present
    University of Southern California,
    Institute for Creative Technologies

Research Assistant Professor   July 2022 to present
    University of Southern California,
    Viterbi School of Engineering Computer Science Department

Interim Director, Vision & Graphics Lab August 2020 to May 2024
    University of Southern California,
    Institute for Creative Technologies

Computer Scientist   September 2020 to June 2022
    University of Southern California,
    Institute for Creative Technologies

Research Associate   September 2018 to August 2020
    University of Southern California,
    Institute for Creative Technologies
    Supervisors: Hao Li, Ph.D

Postdoctoral Researcher   December 2017 to August 2018
    University of Southern California,
    Institute for Creative Technologies
    Supervisors: Hao Li, Ph.D

Intern at Google   May 2017 to September 2017
    Machine Perception Team,
    Google, Mountain View
    Supervisors: Avneesh Sud, Ph.D and Chris Bregler, Ph.D

Research Assistant   May 2014 to May 2017

Center for Visualization and Virtual Environment,
University of Kentucky
Supervisor: Ruigang Yang, Ph.D

Teaching Assistant   Jan 2012 to May 2014
Department of Computer Science,
University of Kentucky
Supervisors: Debby Keen, Ph.D and Yi Pike, Ph.D

EDUCATION   **University of Kentucky**, Lexington, KY

Ph.D., Computer Science, December 2017
- Thesis Topic: *Human Face Modeling and Appearance Synthesis*
- Advisor: Ruigang Yang, Ph.D
- GPA 4.0/4.0

Xi'an Jiaotong University, Xi'an, China

B.S.,Computer Science, May 2011

PEER
REVIEWED
PUBLICATIONS

1. Emily Yue-ting Jia, Jiageng Mao, Zhiyuan Gao, Yajie Zhao, Yue Wang. Learning an Implicit Physics Model for Image-based Fluid Simulation. (ICCV 2025)

2. Wenbin Teng, Gonglin Chen, Haiwei Chen, Yajie Zhao. FVGen: Accelerating Novel-View Synthesis with Adversarial Video Diffusion Distillation. (ICCV 2025)

3. Gonglin Chen, Tianwen Fu, Haiwei Chen, Wenbin Teng, Hanyuan Xiao, **Yajie Zhao**, Sai-Kit Yeung .RDD: Robust Feature Detector and Descriptor using Deformable Transformer. (CVPR 2025)

4. Huajian Huang, Yingshu Chen, Longwei Li, Hui Cheng, Tristan Braud, **Yajie Zhao**, Sai-Kit Yeung .SC-OmniGS: Self-Calibrating Omnidirectional Gaussian Splatting. (ICLR 2025)

5. Pratusha B. Prasad, Omid Hemmatyar, Caoyi Zou, **Yajie Zhao**. "Bifocal Polarization Sensitive Metalens for Rapid BRDF Estimation." (SPIE 2025)

6. Haolin Xiong, Sairisheek Muttukuru, Hanyuan Xiao, Rishi Upadhyay, Pradyumna Chari, **Yajie Zhao**, Achuta Kadambi. "SparseGS: Sparse View Synthesis using 3D Gaussian Splatting." (3DV 2025).

7. Chen, Gonglin, Jinsen Wu, Haiwei Chen, Wenbin Teng, Zhiyuan Gao, Andrew Feng, Rongjun Qin, and **Yajie Zhao**."Geometry-aware Feature Matching for Large-Scale Structure from Motion." (3DV 2025) (**oral**)

8. Gao, Zhiyuan, Wenbin Teng, Gonglin Chen, Jinsen Wu, Ningli Xu, Rongjun Qin, Andrew Feng, and **Yajie Zhao**. "Skyeyes: Ground Roaming using Aerial View Images." (WACV2025).

9. Xiao, Hanyuan, Yingshu Chen, Huajian Huang, Haolin Xiong, Jing Yang, Pratusha Prasad, **Yajie Zhao**. "Localized Gaussian Splatting Editing with Contextual Awareness." (WACV2025).

10. Chen, Haiwei, **Yajie Zhao**. "Don't Look into the Dark: Latent Codes for Pluralistic Image Inpainting." (CVPR2024).

11. Fabien Danieau1, Philippe Guillotel, Ludovic Hoyet, Steve Tonneau, **Yajie Zhao**. "Editorial: Creating Lifelike Digital Humans." (Frontiers in Virtual Reality 2023).

12. Jing Yang, Hanyuan Xiao, Yunxuan Cai, Wenbin Teng, **Yajie Zhao**. "Light Sampling Field and BRDF Representation for Physcially-based Neural Rendering." (ICLR 2023).

13. Shichen Liu, Yunxuan Cai, Haiwei Chen, Yichao Zhou, **Yajie Zhao**. "Rapid Face Asset Acquisition with Recurrent Feature Alignment." (SIGGRAPH Asia 2022).

14. Haiwei Chen, Jiayi Liu, Weikai Chen, Shichen Liu, **Yajie Zhao**. "Exemplar-based Pattern Synthesis with Implicit Periodic Field Network." Computer Vision and Pattern Recognition Conference (CVPR 2022).

15. Zhengfei Kuang, Jiaman Li, Mingming He, Tong Wang, **Yajie Zhao**. "DenseGAP: Graph-Structured Dense Correspondence Learning with Anchor Points." International Conference on Pattern Recognition (ICPR 2022).(**Oral**)

16. Jiaman Li, Ruben Villegas, Duygu Ceylan, Jimei Yang, Zhengfei Kuang, Hao Li, **Yajie Zhao** "Task-generic hierarchical human motion prior using vaes." International Conference on 3D Vision 2021 (3DV). 2021.

17. Shichen Liu, Yichao Zhou, **Yajie Zhao**. "A Rapid Vanishing Point Detector via Learned Optimizers." Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV). 2021.

18. Tianye Li, Shichen Liu, Timo Bolkart, Jiayi Liu, Hao Li, **Yajie Zhao**. "Topologically Consistent Multi-View Face Inference Using Volumetric Sampling." Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV). 2021. (**Oral**)

19. Sitao Xiang, Yuming Gu, Pengda Xiang, Menglei Chai, Hao Li, **Yajie Zhao**, Mingming He. "DisUnknown: Distilling Unknown Factors for Disentanglement Learning." Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV). 2021.

20. Jiaman Li, Ruben Villegas, Duygu Ceylan, Jimei Yang, Zhengfei Kuang, Hao Li, **Yajie Zhao**. "Task-Generic Hierarchical Human Motion Prior using VAEs." In International Conference on 3D Vision (3DV), 2021

21. Li, Jiaman, Zhengfei Kuang, **Yajie Zhao**, Mingming He, Karl Bladin, and Hao Li. "Dynamic facial asset and rig generation from a single scan." ACM Transactions on Graphics (TOG) 39, no. 6 (2020): 1-18. (**Corresponding author.**)

22. Li, Ruilong*, Karl Bladin*, **Yajie Zhao*,** Chinmay Chinara, Owen Ingraham, Pengda Xiang, Xinglei Ren et al. "Learning Formation of Physically-Based Face Attributes." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2020), pp. 3410-3419. 2020. (**Joint first author.**)

23. Xing, Jun, Koki Nagano, Weikai Chen, Haotian Xu, Li-yi Wei, **Yajie Zhao**, Jingwan Lu, Byungmoon Kim, and Hao Li. "HairBrush for Immersive Data-Driven Hair Modeling." In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology, pp. 263-279. (UIST) 2019.

24. **Zhao, Yajie**, Zeng Huang, Tianye Li, Weikai Chen, Chloe LeGendre, Xinglei Ren, Ari Shapiro, and Hao Li. "Learning perspective undistortion of portraits." In Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV 2019), pp. 7849-7859. 2019. (**Oral**)

25. **Zhao, Yajie**, Qingguo Xu, Weikai Chen, Chao Du, Jun Xing, Xinyu Huang, and Ruigang Yang. "Mask-off: Synthesizing face images in the presence of head-mounted displays." In 2019 IEEE Conference on Virtual Reality and 3D User Interfaces (IEEEVR 2019), pp. 267-276. IEEE, 2019. (**Oral**)

26. **Zhao, Yajie**, Weikai Chen, Jun Xing, Xiaoming Li, Zach Bessinger, Fuchang Liu, Wangmeng Zuo, and Ruigang Yang. "Identity preserving face completion for large ocular region occlusion." (BMVC 2018).

27. Shugo Yamaguchi*, Shunsuke Saito*, Koki Nagano, **Zhao, Yajie**, Weikai Chen, Shigeo Morishima, Hao Li. "High-Fidelity Facial Reflectance and Geometry Inference From an Unconstrained Image." ACM Transactions on Graphics (Proceedings of SIGGRAPH 2018).

28. Zeng Huang, Tianye Li, Weikai Chen, **Yajie Zhao**, Jun Xing, Chloe LeGendre, Linjie Luo, Chongyang Ma, Hao Li. "Deep Volumetric Video From Very Sparse Multi-View Performance Capture." European Conference on Computer Vision (ECCV), 2018.

29. **Zhao, Yajie**, et al. "A Performance Comparison between Circular and SplineBased Methods for Iris Segmentation." Pattern Recognition (ICPR), 2014 22nd International Conference on. IEEE, 2014.

30. **Yajie Zhao**; Xinyu Huang; Jizhou Gao; Tokuta, A.; Cha Zhang; Ruigang Yang, "Video face beautification," in Multimedia and Expo (ICME), 2014 IEEE International Conference on , vol., no., pp.1-6, 14-18 July 2014. (**Oral**)

SUPERVISION		
Tianye Li, PhD student	August 2020 to 2023, graduated
Shichen Liu, PhD student	August 2020 to 2023,graduated
Haiwei Chen, PhD student	August 2021 to 2024,graduated
Haiwei Chen, Postdoc	February 2025 to present
Hanyuan Xiao, PhD student	August 2020 to present
Jing Yang, PhD student	August 2020 to present
Sitao Xiang, PhD student	August 2020 to present
Pengda Xiang, PhD student	August 2020 to present
Zhengfei Kuang, PhD student	August 2020 to May 2022
Yuming Gu, PhD student	August 2021 to 2024
Ziqi Zeng, PhD student	August 2022 to present
Bryce Blinn, PhD student	August 2022 to present
Wenbin Teng, PhD student	August 2022 to present
Pratusha Prasud, PhD student& Full-time SDE	August 2021 to present
Chaoyi Zhou, MCs student	May 2022 to present
Emma Hawk, MCs student	May 2022 to present
Yunxuan Cai,Full-time SDE	May 2021 to May 2024
Yunxuan Cai,PhD Student	August 2024 to Present
Tianwen Fu,PhD Student	August 2024 to present
Junyi Ouyang,PhD Student	August 2024 to present
Gonglin Chen,PhD Student	August 2024 to present