YI ZHOU 周易

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I am a research scientist at Adobe. I work in the interdisciplinary field of Computer Vision, Computer Graphics, and Machine Learning. My research focuses on 3D representation learning and virtual human, specializing in 3D human modeling, reconstruction, motion synthesis, and simulation. I served on the Siggraph 2023 Technical Papers Committee, the Siggraph Asia 2024 Technical Papers Committee, and the Eurographics 2025 Short Papers Committee. I published nearly 30 papers in top-tier computer science journals and conferences. I have authored nine issued US, Chinese, and Global patents and 17 pending patents. My presentation of Project Posable at Adobe Max 2023 received 2M views on Twitter.

EDUCATION

Ph.D. Computer Science - University of Southern California **08/2016 – 05/2020**
With Annenberg Fellowship

- Advisor: Dr. Hao Li
- Field: Computer Graphics, Computer Vision, and Deep Learning.
- Thesis: Deep Representations for Shapes, Structure, and Motion.

M.S. Software Engineering - Shanghai Jiao Tong University **09/2013 – 03/2016**

- Advisor: Dr. Shuangjiu Xiao
- Field: Augmented Reality and Human-Computer Interaction.
- Thesis: Projection Mapping on Movable 3D Objects.

B.S. Software Engineering - Shanghai Jiao Tong University **09/2009 – 07/2013**

WORKING EXPERIENCE

Adobe (San Jose) **06/2020 – present**
Research Scientist

- Topic: 3D human modeling, motion synthesis, neural simulation.

Facebook Reality Lab (Pittsburgh) **05/2019 – 12/2019**
Research Intern
Mentor: Dr. Chenglei Wu

- Topic: Mesh convolution for high-resolution 3D body codec.

Adobe (San Jose) **05/2018 – 08/2018**
Research Intern
Mentor: Dr. Jingwan (Cynthia) Lu

- Topic: Human motion synthesis.

Pinscreen (Santa Monica) **05/2017 – 08/2017**
Research Intern

- Topic: Face tracking and facial expression retargeting in videos.

Microsoft Research Asia (Beijing) **06/2015 – 09/2015**
Internet Graphics Group – Research Intern
Mentors: Dr. Xin Tong and Dr. Yue Dong

- Topic: 3D hair tracking and reconstruction from single-view videos.

PUBLICATIONS

- **PERM: A PARAMETRIC REPRESENTATION FOR MULTI-STYLE 3D HAIR MODELING**

  Chengan He (primary intern), Xin Sun, Zhixin Shu, Fujun Luan, Soren Pirk, Jorge Alejandro Amador Herrera, Dominik L. Michels, Tuanfeng Y. Wang, Meng Zhang, Holly Rushmeier and **Yi Zhou**.

  Proceedings of the Fifteenth International Conference on Learning Representations 2025,

  (ICLR 2025 Spotlight Paper), 04/2025

- **DMESH++: AN EFFICIENT DIFFERENTIABLE MESH FOR COMPLEX SHAPES**

  Sanghyun Son (Primary Intern), Matheus Gadelha, Yang Zhou, Matthew Fisher, Zexiang Xu, Yi-Ling Qiao, Ming C. Lin, **Yi Zhou**.

  12/2024

- **DMESH: A DIFFERENTIABLE REPRESENTATION FOR GENERAL MESHES**

  Sanghyun Son (Primary Intern), Matheus Gadelha, Yang Zhou, Zexiang Xu, Ming C. Lin, **Yi Zhou**.

  The Thirty-Eighth Annual Conference on Neural Information Processing Systems,

  (NeurIPS 2024), 12/2024

- **LRM-ZERO: TRAINING LARGE RECONSTRUCTION MODELS WITH SYNTHESIZED DATA**

  Desai Xie, Sai Bi, Zhixin Shu, Kai Zhang, Zexiang Xu, **Yi Zhou**, Sören Pirk, Arie Kaufman, Xin Sun, Hao Tan.

  The Thirty-Eighth Annual Conference on Neural Information Processing Systems,

  (NeurIPS 2024), 12/2024

- **CARVE3D: IMPROVING MULTI-VIEW RECONSTRUCTION CONSISTENCY FOR DIFFUSION MODELS WITH RL FINETUNING**

  Desai Xie, Jiahao Li, Hao Tan, Xin Sun, Zhixin Shu, **Yi Zhou**, Sai Bi, Sören Pirk, Arie E Kaufman.

  Proceedings of the 37th IEEE International Conference on Computer Vision and Pattern Recognition,

  (CVPR 2024), 6/2024

- **DIGITAL SALON: AN AI AND PHYSICS-DRIVEN TOOL FOR 3D HAIR GROOMING AND SIMULATION**

  Chengan He (primary intern)*, Jorge Alejandro Amador Herrera (primary intern)*, **Yi Zhou***, Zhixin Shu, Xin Sun, Yao Feng, Sören Pirk, Dominik L. Michels, Meng Zhang, Tuanfeng Y. Wang, Holly Rushmeier.

  Special Interest Group on Computer Graphics and Interactive Techniques Conference,

  (SIGGRAPH Real-Time Live 2024), 12/2024

- **AUGMENTED MASS-SPRING MODEL FOR REAL-TIME DENSE HAIR SIMULATION**

  Jorge Alejandro Amador Herrera (primary intern), **Yi Zhou**, Xin Sun, Zhixin Shu, Chengan He, Soren Pirk, Dominik L. Michels.

  2024

- **HAIR20K: A LARGE 3D HAIRSTYLE DATABASE**

  Yi Zhou, Xin Sun, Chengan He.

  2024

- **NORMAL-GUIDED GARMENT UV PREDICTION FOR HUMAN RE-TEXTURING**

  Yasamin Jafarian, Tuanfeng Y. Wang, Duygu Ceylan, Jimei Yang, Nathan Carr, **Yi Zhou**, Hyun Soo Park.

  Proceedings of the 36nd IEEE International Conference on Computer Vision and Pattern Recognition,

  (CVPR 2023), 6/2023

- **FAST COMPLEMENTARY DYNAMICS VIS SKINNING EIGENMODES**

  Otman Benchekroun, Jiayi Eris Zhang, Siddhartha Chaudhuri, Eitan Grinspun1, **Yi Zhou**, Alec Jacobson.

  Special Interest Group on Computer Graphics and Interactive Techniques Conference,

  (SIGGRAPH 2023), 8/2023

- **NEMF: NEURAL MOTION FIELDS FOR KINEMATIC ANIMATION**

  Chengan He (Primary Intern), Jun Saito, James Zachary, Holly Rushmeier, **Yi Zhou**.

The Thirty-Sixth Annual Conference on Neural Information Processing Systems,
(NeurIPS 2022 Spotlight Paper), 12/2022

- **LEARNING VISIBILITY FOR ROBUST DENSE HUMAN BODY ESTIMATION**
  Chun-Han Yao, Jimei Yang, Duygu Ceylay, **Yi Zhou**, Yang Zhou, Ming-Hsuan Yang.
  Proceedings of the 19th European Conference on Computer Vision,
  (ECCV 2022), 09/2022
- **REFU: A REPULSIVE FORCE UNIT FOR GARMENT COLLISION HANDLING IN NEURAL NETWORKS.**
  Qingyang Tan (primary intern), **Yi Zhou**, Tuanfeng Wang, Duygu Ceylan, Xin Sun, Dinesh Manocha
  Proceedings of the 19th European Conference on Computer Vision,
  (ECCV 2022), 09/2022
- **STOCHASTIC SCENE-AWARE MOTION PREDICTION**
  Mohamed Hassan, Duygu Ceylan, Ruben Villegas, Jun Saito, Jimei Yang, **Yi Zhou** and Michael J Black.
  Proceedings of the IEEE International Conference on Computer Vision 2021,,
  (ICCV 2021), 10/2021
- **A DEEP EMULATOR FOR SECONDARY MOTION OF 3D CHARACTERS**
  Mianlun Zheng (primary intern), **Yi Zhou**, Duygu Ceylan and Jernej Barbic .
  Proceedings of the 34nd IEEE International Conference on Computer Vision and Pattern Recognition,
  (CVPR 2021), Oral Presentation, 7/2021
- **FULLY CONVOLUTIONAL MESH AUTOENCODER USING EFFICIENT SPACIALY VARYING KERNELS**
  Yi Zhou, Chenglei Wu, Zimo Li, Chen Cao, Yuting Ye, Jason Saragih, Hao Li and Yaser Sheikh.
  Proceedings of the 34th Conference on Neural Information Processing Systems,
  (Neurips 2020), 12/2020
- **GENERATIVE TWEENING: LONG-TERM INBETWEENING OF 3D HUMAN MOTIONS**
  Yi Zhou, Jingwan Lu, Connelly Barnes, Jimei Yang, Sitao Xiang and Hao Li.
  arXiv preprint arXiv:2005.08891
- **ON THE CONTINUITY OF ROTATION REPRESENTATIONS IN NEURAL NETWORKS**
  Yi Zhou*, Connelly Barnes*, Jingwan Lu, Jimei Yang, and Hao Li.
  Proceedings of the 32nd IEEE International Conference on Computer Vision and Pattern Recognition,
  (CVPR 2019), 06/2019
- **HAIRNET: SINGLE-VIEW HAIR RECONSTRUCTION USING CONVOLUTIONAL NEURAL NETWORKS**
  Yi Zhou, Liwen Hu, Jun Xing, Weikai Chen, Han-Wei Kung, and Hao Li.
  Proceedings of the 15th European Conference on Computer Vision,
  (ECCV 2018), 09/2018
  -The Best of the Physics arXiv (week ending June 30, 2018) by Emerging Technology from the arXiv
  -Featured in Nvidia News
- **AUTO-CONDITIONED RECURRENT NETWORKS FOR EXTENDED COMPLEX HUMAN MOTION SYNTHESIS**
  Yi Zhou*, Zimo Li*, Shuangjiu Xiao, Chong He, and Hao Li.

Proceedings of the Sixth International Conference on Learning Representations 2018,

(ICLR 2018), 04/2018

- **REALISTIC DYNAMIC FACIAL TEXTURES FROM A SINGLE IMAGE USING GANS**

  Kyle Olszewski*, Zimo Li*, Chao Yang*, **Yi Zhou**, Ronald Yu, Zeng Huang, Sitao Xiang, Shunsuke Saito, Pushmeet Kohli, and Hao Li.

  Proceedings of the IEEE International Conference on Computer Vision 2017,

  (ICCV 2017), 10/2017

- **PMOMO: PROJECTION MAPPING ON MOVABLE 3D OBJECT**

  Yi Zhou, Shuangjiu Xiao, Ning Tang, Zhiyong Wei, and Xu Chen.

  Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems, pp. 781-790. ACM, 2016

  (CHI 2016), 05/2016

INNOVATION AWARDS

2013

World-wide 3rd place (Top 0.5%) at "Microsoft Imagine Cup – Azure Challenge"
Microsoft Imagine Cup is the biggest student innovation competition in the world.

World-wide 1st place at "Ericsson Application Awards" **2012**

AWARDS

Annenberg Symposium Award 2018, 2019
Women in Machine Learning at NIPS 2018 Travel Award
ICLR 2018 Travel Award

PATENTS

- US Patent: "Resolving Garment Collisions Using Neural Networks", issued 05/07/2024.
- US Patent: "Systems And Methods For Mesh Generation", issued 08/20/2021.
- US Patent: "Predicting Secondary Motion of Multidimentional Objects Based on Local Patch Features", issued 11/28/2023.
- Global Patent: "Resolving Garment Collisions Using Neural Networks", issued 10/30/2024.
- US Patent: "Generating Realistic Animations for Digital Animation Characters Utilizing a Generative Adversarial Network and A Hip Motion Prediction Network", issued 03/30/2021.
- Chinese Patent: ZL 201310208253.3, filed 05/30/2013, and issued 03/02/2016.
- Chinese Patent: ZL 201310208266.0, filed 05/30/2013, and issued 03/02/2016.
- Chinese Patent: ZL 201310210827.0, filed 05/30/2013, and issued 12/28/2016.
- Chinese Patent: ZL 201310209941.1, filed 05/30/2013, and issued 12/28/2016.

TEACHING ASSISTANT

Database Systems (CSCI 585, USC) **Spring 2019**
Digital Geometry Processing (CSCI 621, USC) **Spring 2017**

ACADEMIC SERVICES

Co-organizer of SyntaGen: 2nd Workshop on Harnessing Generative Models for Synthetic Visual Datasets at CVPR 2025
Co-organizer of SyntaGen: Workshop on Harnessing Generative Models for Synthetic Visual Datasets at CVPR 2024
Technical Paper Committee of Siggraph 2023, Siggraph Asia 2024, Eurographics 2025.
Reviewer of ACM VRST 2017, ACM VRST 2018, WiML 2018, VISINF 2018, ICCV 2019, CVPR 2019-2025, Siggraph Asia 2020-2024, CVPR 2020, Siggraph 2021-2025, Eurographics, ToG, PAMI, etc.

CODING SKILLS C++, C#, Python, Pytorch, Erlang, etc.