

Feng Liu

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Education

Sichuan University

Jul. 2018

Ph.D., Computer Science

Chengdu, China

- Dissertation title: 3D Face Reconstruction and Recognition in Unconstrained Scenarios
ACM China Doctoral Dissertation Award 2018
- Advisor: Prof. Zhisheng You and Prof. Qijun Zhao

Professional Experience

Michigan State University

Oct. 2018 – Present

Postdoctoral Researcher, Department of Computer Science and Engineering

East Lansing, MI

- Mentor: Prof. Xiaoming Liu

Sichuan University

Sep. 2014 – Jun. 2018

Graduate Research Assistant, Department of Computer Science

Chengdu, China

Research Interests

- **3D Object/Scene Understanding**, including 3D correspondence, detection and reconstruction
- **AI-Generated Content**: learning explainability, generalization and controllability in generative models
- **Biometric Recognition**, including face, gait and person re-identification
- **Low-level Vision**, such as DeepFake detection

Selected Publications

Google Scholar lists my h-index as **13**, with **1,250** citations.

Peer-reviewed Conference and Journal Publications

- *Journal Articles*

- [1]. **Learning Implicit Functions for Dense 3D Shape Correspondence of Generic Objects** [PDF](#)
Feng Liu and Xiaoming Liu
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Jan. 2023, in press
- [2]. **On Learning Disentangled Representations for Gait Recognition** [PDF](#)
Ziyuan Zhang, Luan Tran, Feng Liu and Xiaoming Liu
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 44, No.1, pp.345-360, 2022
- [3]. **Shape My Face: Registering 3D Face Scans by Surface-to-Surface Translation** [PDF](#)
Mehdi Bahri, Eimear O' Sullivan, Shunwang Gong, Feng Liu, Xiaoming Liu, Michael Bronstein, Stefanos Zafeiriou
International Journal of Computer Vision (**IJCV**), Vol. 129, No. 9, pp.2680-2713, 2021
- [4]. **Joint Face Alignment and 3D Face Reconstruction with Application to Face Recognition** [PDF](#)
Feng Liu, Qijun Zhao, Xiaoming Liu and Dan Zeng
IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**), Vol. 42, No.3, pp.664-678, 2020

- [5]. **3D Face Reconstruction from Mugshots: Application to Arbitrary View Face Recognition** [PDF](#)
Jie Liang, Huan Tu, Feng Liu, Qijun Zhao and Anil Jain
Neurocomputing, Vol. 410, pp.12-27, 2020
- [6]. **On 3D Face Reconstruction via Cascaded Regression in Shape Space** [PDF](#)
Feng Liu, Dan Zeng, Jing Li and Qijun Zhao
Frontiers of Information Technology and Electronic Engineering, Vol. 18, No. 12, pp.1978-1990, 2017
- *Conference Papers*
- [7]. **Learning Clothing and Pose Invariant 3D Shape Representation for Long-Term Person Re-Identification** [PDF](#)
Feng Liu, Minchul Kim, Ziang Gu, Anil Jain and Xiaoming Liu
International Conference on Computer Vision (**ICCV 2023**)
- [8]. **DCFace: Synthetic Face Generation with Dual Condition Diffusion Model** [PDF](#)
Minchul Kim, Feng Liu, Anil Jain and Xiaoming Liu
IEEE Computer Vision and Pattern Recognition (**CVPR 2023**)
- [9]. **Cluster and Aggregate: Face Recognition with Large Probe Set** [PDF](#)
Minchul Kim, Feng Liu, Anil Jain and Xiaoming Liu
Neural Information Processing Systems (**NeurIPS 2022**)
- [10]. **2D GANs Meet Unsupervised Single-View 3D Reconstruction** [PDF](#)
Feng Liu and Xiaoming Liu
European Conference on Computer Vision (**ECCV 2022**)
- [11]. **Controllable and Guided Face Synthesis for Unconstrained Face Recognition** [PDF](#)
Feng Liu, Minchul Kim, Anil Jain and Xiaoming Liu
European Conference on Computer Vision (**ECCV 2022**)
- [12]. **Voxel-based 3D Detection and Reconstruction of Multiple Objects from a Single Image** [PDF](#)
Feng Liu and Xiaoming Liu
Neural Information Processing Systems (**NeurIPS 2021**)
- [13]. **Fully Understanding Generic Objects: Modeling, Segmentation, and Reconstruction** [PDF](#)
Feng Liu, Luan Tran and Xiaoming Liu
IEEE Computer Vision and Pattern Recognition (**CVPR 2021**)
- [14]. **Learning Implicit Functions for Topology-Varying Dense 3D Shape Correspondence** [PDF](#)
Feng Liu and Xiaoming Liu
Neural Information Processing Systems (**NeurIPS 2020**), [Oral presentation, 1.1% \(105/9454\)](#)
- [15]. **On the Detection of Digital Face Manipulation** [PDF](#)
Feng Liu^{*}, Hao Dang^{*}, Joel Stehouwer^{*}, Xiaoming Liu and Anil Jain
IEEE Computer Vision and Pattern Recognition (**CVPR 2020**)
- [16]. **3D Face Modeling from Diverse Raw Scan Data** [PDF](#)
Feng Liu, Luan Tran and Xiaoming Liu
International Conference on Computer Vision (**ICCV 2019**), [Oral presentation, 4.3% \(187/4303\)](#)
- [17]. **Towards High-Fidelity Nonlinear 3D Face Morphable Model** [PDF](#)
Luan Tran, Feng Liu and Xiaoming Liu
IEEE Computer Vision and Pattern Recognition (**CVPR 2019**)
- [18]. **Disentangling Features in 3D Face Shapes for Joint Face Reconstruction and Recognition** [PDF](#)
Feng Liu, Ronghang Zhu, Dan Zeng, Qijun Zhao and Xiaoming Liu
IEEE Computer Vision and Pattern Recognition (**CVPR 2018**)
- [19]. **Joint Face Alignment and 3D Face Reconstruction** [PDF](#)
Feng Liu, Dan Zeng, Qijun Zhao and Xiaoming Liu
European Conference on Computer Vision (**ECCV 2016**), [Spotlight presentation, 4.6% \(72/1561\)](#)

- [20]. **Regressing 3D Face Shapes from Arbitrary Image Sets with Disentanglement in Shape Space** [PDF](#)
Wan Tian, [Feng Liu](#) and Qijun Zhao
IEEE International Conference on Biometric (ICB 2019)
- [21]. **On Mugshot-based Arbitrary View Face Recognition** [PDF](#)
Jie Liang, [Feng Liu](#), Huan Tu, Qijun Zhao and Anil Jain
International Conference on Pattern Recognition (ICPR 2018)
- [22]. **Landmark-based 3D Face Reconstruction from an Arbitrary Number of Unconstrained Images** [PDF](#)
Jie Liang, Wan Tian, [Feng Liu](#) and Qijun Zhao
IEEE International Conference on Automatic Face and Gesture Recognition (FG 2018)
- [23]. **Multi-Dim: A Multi-Dimensional Face Database Towards the Application of 3D Technology in Real-World** [PDF](#)
[Feng Liu](#) Jun Hu, Jianwei Sun and Qijun Zhao
IEEE International Joint Conference on Biometrics (IJCB 2017)

Grants & Projects

- [1]. **Physics-driven Modeling and Learning for Person Recognition at a Distance and Altitude**
Senior Researcher IARPA, \$10.6M, 11/21-10/25 *2021-Present*
 - Topic: Body matching/Person re-identification, Image synthesis, 3D human body modeling
 - Led robust body matching method, joint analysis of 2D images and 3D body shapes, and human image synthesis and editing
- [2]. **Research on Key Technologies of 3D Face Reconstruction in Public Security Surveillance and Recognition** *2017-2018*
Principal Investigator The Miaozi Key Project in Science and Technology Innovation Program of Sichuan Province, China, \$17.5K, 05/17-10/18
 - Topic: Face recognition, 3D face modeling, 3D face reconstruction
 - Led the responsibilities of overseeing research design, managing the team, securing funding and aligning with institutional goals

Honors & Awards

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| • ACM China Doctoral Dissertation Award | 2018 |
| • Excellent Ph.D. Student | 2017 |
| • Excellent Ph.D. Student | 2016 |
| • The GuangHua Educational Scholarship | 2016 |
| • The 10th China Post-graduate Mathematic Contest in Modeling Third prize | 2013 |
| • The 9th China Post-graduate Mathematic Contest in Modeling Third prize | 2012 |

Teaching & Mentoring

Teaching:

- ◇ **CSE803 Computer Vision** Fall 2023
Co-Instructor with Prof. Xiaoming Liu

Mentoring:

- ◇ **Zhiyuan Zhang**, CS undergraduate at Michigan State University 2018-2019
Published a paper ([PDF](#)) on gait recognition in TPAMI
- ◇ **Hao Dang**, CS undergraduate at University of Wisconsin–Madison 2019-2020
Published a paper ([PDF](#)) on DeepFake detection in CVPR 2020
- ◇ **Zoaib Sihorwala**, high school student in the [MSU HSHSP program](#) 06/2023-08/2023
Completed the paper titled “Predicting Air Quality Index Using Multimodal Neural Networks”
- ◇ **Ziang Gu**, CS undergraduate at Michigan State University 2022-Present
Working on Text-to-3D generation

Professional Activities

Area Chair:

- ◇ IEEE International Conference on Automatic Face and Gesture Recognition (FG) 2024

Competition Organizer:

- ◇ Aerial-Ground Person Re-identification Challenge IJCB 2023

Journal Reviewer:

- ◇ IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- ◇ International Journal of Computer Vision (IJCV)
- ◇ IEEE Transactions on Information Forensics and Security (TIFS)
- ◇ IEEE Transactions on Visualization and Computer Graphics (TVCG)
- ◇ IEEE Transactions on Industrial Informatics (TII)
- ◇ ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)
- ◇ Pattern Recognition (PR)
- ◇ IEEE Transactions on Multimedia (MM)

Conference Reviewer / Program Committee Member:

- ◇ IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2019-2023
- ◇ International Conference on Computer Vision (ICCV) 2019, 2021, 2023
- ◇ European Conference on Computer Vision (ECCV) 2018, 2020, 2022
- ◇ Neural Information Processing Systems (NeurIPS) 2022, 2023
- ◇ International Conference on Learning Representations (ICLR) 2022, 2023
- ◇ ACM Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH) 2021
- ◇ AAAI Conference on Artificial Intelligence (AAAI) 2020-2024
- ◇ International Joint Conferences on Artificial Intelligence (IJCAI) 2020, 2021
- ◇ Asian Conference on Computer Vision (ACCV) 2020
- ◇ Winter Conference on Applications of Computer Vision (WACV) 2020-2023
- ◇ IEEE International Joint Conference on Biometrics (IJCB) 2020
- ◇ IEEE International Conference on Automatic Face and Gesture Recognition (FG) 2019, 2021
- ◇ International Biometric Conferences (ICB) 2019

Updated on: Aug. 14, 2023