

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:** 3D detection, reconstruction, and matching
- **3D Human Digitization:** Modeling, reconstruction and rendering
- **AI-Generated Content:** Explainability, generalization and controllability in generative models;
DeepFake detection
- **Biometric Recognition:** Face and gait recognition; person re-identification

Publications

Google Scholar <https://scholar.google.com/citations?user=8Y9iUz0AAAAJ> lists my h-index as **14**, with **1,333** citations.

- *Journal Articles*

- [1]. **Learning Implicit Functions for Dense 3D Shape Correspondence of Generic Objects**

Feng Liu and Xiaoming Liu

IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), Jan. 2023, in press [PDF](#)

- [2]. **On Learning Disentangled Representations for Gait Recognition**

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 [PDF](#)

- [3]. **Shape My Face: Registering 3D Face Scans by Surface-to-Surface Translation**

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 [PDF](#)

- [4]. **3D Face Reconstruction from Mugshots: Application to Arbitrary View Face Recognition**
Jie Liang, Huan Tu, Feng Liu, Qijun Zhao and Anil Jain
Neurocomputing, Vol. 410, pp.12-27, 2020 [PDF](#)
- [5]. **On 3D Face Reconstruction via Cascaded Regression in Shape Space**
Feng Liu, Dan Zeng, Jing Li and Qijun Zhao
Frontiers of Information Technology and Electronic Engineering, Vol. 18, No. 12, pp.1978-1990, 2017 [PDF](#)
- *Conference Papers*
- [7]. **FarSight: A Physics-Driven Whole-Body Biometric System at Large Distance and Altitude**
Feng Liu, Ryan Ashbaugh, Nicholas Chittim, Najmul Hassan, Ali Hassani, Ajay Jaiswal, Minchul Kim, Zhiyuan Mao, Christopher Perry, Zhiyuan Ren, Yiyang Su, Pegah Varghaei, Kai Wang, Xingguang Zhang, Stanley Chan, Arun Ross, Humphrey Shi, Zhangyang Wang, Anil Jain, and Xiaoming Liu
IEEE Winter Conference on Application of Computer Vision (**WACV 2024**), in press [arXiv](#)
- [8]. **Learning Clothing and Pose Invariant 3D Shape Representation for Long-Term Person Re-Identification**
Feng Liu, Minchul Kim, Ziang Gu, Anil Jain and Xiaoming Liu
International Conference on Computer Vision (**ICCV 2023**) [PDF](#)
- [9]. **DCFace: Synthetic Face Generation with Dual Condition Diffusion Model**
Minchul Kim, Feng Liu, Anil Jain and Xiaoming Liu
IEEE Computer Vision and Pattern Recognition (**CVPR 2023**) [PDF](#)
- [10]. **Cluster and Aggregate: Face Recognition with Large Probe Set**
Minchul Kim, Feng Liu, Anil Jain and Xiaoming Liu
Neural Information Processing Systems (**NeurIPS 2022**) [PDF](#)
- [11]. **2D GANs Meet Unsupervised Single-View 3D Reconstruction**
Feng Liu and Xiaoming Liu
European Conference on Computer Vision (**ECCV 2022**) [PDF](#)
- [12]. **Controllable and Guided Face Synthesis for Unconstrained Face Recognition**
Feng Liu, Minchul Kim, Anil Jain and Xiaoming Liu
European Conference on Computer Vision (**ECCV 2022**) [PDF](#)
- [13]. **Voxel-based 3D Detection and Reconstruction of Multiple Objects from a Single Image**
Feng Liu and Xiaoming Liu
Neural Information Processing Systems (**NeurIPS 2021**) [PDF](#)
- [14]. **Fully Understanding Generic Objects: Modeling, Segmentation, and Reconstruction**
Feng Liu, Luan Tran and Xiaoming Liu
IEEE Computer Vision and Pattern Recognition (**CVPR 2021**) [PDF](#)
- [15]. **Learning Implicit Functions for Topology-Varying Dense 3D Shape Correspondence**
Feng Liu and Xiaoming Liu
Neural Information Processing Systems (**NeurIPS 2020**), [Oral presentation, 1.1% \(105/9454\)](#) [PDF](#)
- [16]. **On the Detection of Digital Face Manipulation**
Feng Liu*, Hao Dang*, Joel Stehouwer*, Xiaoming Liu and Anil Jain
IEEE Computer Vision and Pattern Recognition (**CVPR 2020**) [PDF](#)
- [17]. **3D Face Modeling from Diverse Raw Scan Data**
Feng Liu, Luan Tran and Xiaoming Liu
International Conference on Computer Vision (**ICCV 2019**), [Oral presentation, 4.3% \(187/4303\)](#) [PDF](#)
- [18]. **Towards High-Fidelity Nonlinear 3D Face Morphable Model**
Luan Tran, Feng Liu and Xiaoming Liu
IEEE Computer Vision and Pattern Recognition (**CVPR 2019**) [PDF](#)

- [19]. **Disentangling Features in 3D Face Shapes for Joint Face Reconstruction and Recognition**
Feng Liu, Ronghang Zhu, Dan Zeng, Qijun Zhao and Xiaoming Liu
 IEEE Computer Vision and Pattern Recognition (**CVPR 2018**) [PDF](#)
- [20]. **Joint Face Alignment and 3D Face Reconstruction**
Feng Liu, Dan Zeng, Qijun Zhao and Xiaoming Liu
 European Conference on Computer Vision (**ECCV 2016**), [Spotlight presentation, 4.6% \(72/1561\)](#) [PDF](#)
- [21]. **Regressing 3D Face Shapes from Arbitrary Image Sets with Disentanglement in Shape Space**
 Wan Tian, **Feng Liu** and Qijun Zhao
 IEEE International Conference on Biometric (**ICB 2019**) [PDF](#)
- [22]. **On Mugshot-based Arbitrary View Face Recognition**
 Jie Liang, **Feng Liu**, Huan Tu, Qijun Zhao and Anil Jain
 International Conference on Pattern Recognition (**ICPR 2018**) [PDF](#)
- [23]. **Landmark-based 3D Face Reconstruction from an Arbitrary Number of Unconstrained Images**
 Jie Liang, Wan Tian, **Feng Liu** and Qijun Zhao
 IEEE International Conference on Automatic Face and Gesture Recognition (**FG 2018**) [PDF](#)
- [24]. **Multi-Dim: A Multi-Dimensional Face Database Towards the Application of 3D Technology in Real-World**
Feng Liu Jun Hu, Jianwei Sun and Qijun Zhao
 IEEE International Joint Conference on Biometrics (**IJCB 2017**) [PDF](#)

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

Teaching

CSE803 Computer Vision, MSU

Fall 2023

Co-Instructor with Prof. Xiaoming Liu

- Course design and planning
- Responsible for delivering 12 lectures, constituting half of the course content
- Assessment and grading
- Office hours, student consultation and class management

Mentoring

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 content 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, 2024
- ◇ 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: Oct. 5, 2023