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 **1,341** 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 and Stefanos Zafeiriou
International Journal of Computer Vision (**IJCV**), Vol. 129, No. 9, pp.2680-2713, 2021 PDF

[4]. **Joint Face Alignment and 3D Face Reconstruction with Application to Face Recognition**
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
PDF

[5]. **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

[6]. **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 Chimitt, 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:

◇ **Ziyuan 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