

# Yaojie Liu

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## EXPERIENCE

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- Research Scientist**, Google Research 06/2021 - present  
**Research Intern**, HMI, Robert Bosch LLC 06/2020 - 08/2020
  - Mentors: Xinyu Huang, Liu Ren
  - Project: Face Shadow Removal/Relighting**Research Intern**, AI Research, Apple 05/2019 - 08/2019
  - Mentors: Barry Theobald, Nicholas Apostoloff
  - Project: Audio-Visual Modeling

## EDUCATION

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- Ph.D., Computer Science**, Michigan State University, USA 05/2016 - 05/2021
  - Advisor: Xiaoming Liu
  - Committee: Xiaoming Liu (chair), Anil Jain, Arun Ross, Daniel Morris
  - Dissertation: Face Anti-Spoofing: Detection, Generalization, and Visualization**M.S., Computer Science**, Ohio State University, USA 08/2014 - 05/2016
  - Advisor: Aleix Martinez
  - Project: Global and Local Fitting of Facial Landmarks and Action Units**B.E., Communication Engineering**, UESTC, China 08/2010 - 05/2014
  - Advisor: Chang Shu
  - Thesis: Image Inpainting

## PUBLICATIONS

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I have >700 citations according to [Google Scholar](#), and my **h-index** is 7. (\* denotes equal contribution)

### Conference Papers:

1. **Yaojie Liu**, Xinyu Huang, Ren Liu, Xiaoming Liu, “Facial Foreign Shadow Detection and Removal via Spatio-Temporal Consistency,” under review in *ICCV*, 2021.
2. Xiaohong Liu, **Yaojie Liu**, Jun Chen, Xiaoming Liu, “PSSC-Net: Progressive Spatio-Channel Correlation Network for Image Manipulation Detection and Localization,” under review in *ICCV*, 2021. [\[PDF\]](#)
3. **Yaojie Liu**, Jeol Stehouwer, Xiaoming Liu, “On Disentangling Spoof Traces for Generic Face Anti-Spoofing,” *Proc. European Conference of Computer Vision (ECCV)*, 2020. (26% Acceptance Rate) [\[PDF, Code, Short Video, Long Video\]](#)
4. Jeol Stehouwer, Amin Jourabloo, **Yaojie Liu**, Xiaoming Liu, “Noise Modeling, Synthesis and Classification for Generic Object Anti-Spoofing,” *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2020. (25% Acceptance Rate) [\[PDF, Code, Data, Short Video\]](#)
5. **Yaojie Liu**, Jeol Stehouwer, Amin Jourabloo, Xiaoming Liu, “Deep Tree Learning for Zero-shot Face Anti-spoofing,” *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2019. (**Oral, Best Paper Finalist, 5.6% Acceptance Rate.**) [\[PDF, Code, Data, Video, Poster\]](#)
6. **Yaojie Liu\***, Amin Jourabloo\*, Xiaoming Liu, “Face De-Spoofing: Anti-Spoofing via Noise Modeling,” *Proc. European Conference of Computer Vision (ECCV)*, 2018. (31.8% Acceptance Rate) [\[PDF, Code, Poster\]](#)
7. **Yaojie Liu\***, Amin Jourabloo\*, Xiaoming Liu, “Learning Deep Models for Face Anti-Spoofing: Binary or Auxiliary Supervision,” *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2018. (30% Acceptance Rate) [\[PDF, Data, Poster\]](#)
8. **Yaojie Liu**, Amin Jourabloo, William Ren, Xiaoming Liu, “Dense Face Alignment,” *International Conference on Computer Vision (ICCVW) Workshop on Analysis and Modeling of Faces and Gestures (AMFG)*, 2017. [\[PDF, Code, Poster\]](#)

9. **Yaojie Liu\***, Yousef Atoum\*, Amin Jourabloo\*, Xiaoming Liu, “Face Anti-Spoofing Using Patch and Depth-Based CNNs,” *IEEE International Joint Conference on Biometrics (IJCB)*, 2017. [\[PDF\]](#), [Poster](#)
10. Ruiqi Zhao, Yan Wang, C.F. Benitez-Quiroz, **Yaojie Liu**, A.M. Martinez, “Fast and Precise Face Alignment and 3D Shape Reconstruction from a Single 2D Image.” *European Conference on Computer Vision Workshop (ECCVW)*, 2016. [\[PDF\]](#)
11. **Yaojie Liu**, Chang Shu, “A Comparison of Image Inpainting Techniques.” *International Conference on Graphic and Image Processing (ICGIP)*, 2015. [\[Link\]](#)

#### Journal Papers:

12. **Yaojie Liu**, Xiaoming Liu, “Physics-Guided Spoof Trace Disentanglement for Generic Face Anti-Spoofing” under review in *IEEE Transaction on Pattern Analysis and Machine Intelligence (PAMI)*, 2020. [\[PDF\]](#)
13. Chang Shu, **Yaojie Liu**, “Inpainting: Survey and Experiments” *International Journal of Signal Processing, Image Processing and Pattern Recognition*, Vol. 9, Issue. 10, pp. 21-36, 2016. [\[Link\]](#)
14. **Yaojie Liu**, Chang Shu, Zhizhong Fu “Dynamic Gesture Localization and Recognition Algorithm Based on Skeletonization” *Electronic Science and Technology*, Vol. 3, pp. 005, 2014. (in Chinese) [\[Link\]](#)

#### Book Chapters:

15. **Yaojie Liu**, Jeol Stehouwer, Amin Jourabloo, Xiaoming Liu, “Presentation Attack Detection for Face in Mobile Phones” *Selfie Biometrics*, Ajita Rattani, Reza Derakhahani, and Arun Ross, Springer, 2019. [\[PDF\]](#)

#### PATENT

- **Yaojie Liu**, Amin Jourabloo, Xiaoming Liu, “Improved Spoof Detection for Facial Recognition,” U.S. Serial No. 62/626,486, filed on Feb 05, 2018.

#### HONORS & AWARDS

- Fitch Beach Award nominee (one winner in entire CSE department), MSU 2021
- Outstanding Graduate Student Award, CSE Department at MSU 2021
- ECCV 2020 Outstanding Reviewer Award (215 selected from 2,830 reviewers) 2020
- College of Engineering Dissertation Completion Fellowship, MSU 2020
- CVPR 2019 Best Paper Finalist (45 selected from 1,294 accepted papers) 2019
- Honorable Mention, Engineering Graduate Research Symposium, MSU 2018
- College of Engineering Distinguished Fellowship, MSU 2016
- Best Bachelor Thesis Award, UESTC 2014
- People’s Scholarship for Excellent University Student, UESTC 2011-2013

#### PROFESSIONAL SERVICES

- **Co-Organizer/Lecturer:**
  - IJCB 2020 Tutorial, “Recent Advances on Detecting Face Spoofing and Face Manipulation”, half-day. [\[1, 2, 3\]](#)
  - BTAS 2019 Tutorial, “Face Anti-Spoofing: Past, Present and Future”, half-day. [\[1, 2, 3\]](#)
  - CVPR 2018 Demo, “Real-time Face Anti-spoofing System”, full-day. [\[Link\]](#)
- **Conference Reviewer:** CVPR’19-21, ICCV’19, ECCV’20, NeurIPS’20, AAAI’20-21, ICML’21, WACV’21, ACCV’20, BTAS’18, ICB’19, ICME’20-21, PRCV’19-20
- **Journal Reviewer:** TPAMI, TIP, TIFS, CVIU, Neurocomputing, JEI, Image and Vision Computing, TBIOM, TOMM, IET Computer Vision, IEEE Access, JCST
- **Mentoring:** Xiaohong Liu (Summer 2020 - Fall 2020), Xiaohan Zhang (Fall 2016 - Spring 2017), William Ren (Summer 2016, Summer 2017)

#### INVITED TALKS

- “Face Anti-Spoofing: Detect, Visualize, and Generalize”, Sichuan University. 1/2020
- “Face Anti-Spoofing: Detect, Visualize, and Generalize”, UESTC. 1/2020
- “Deep Tree Learning for Zero-shot Face Anti-spoofing”, MSU/ND Vision Workshop. 9/2019
- “Deep Tree Learning for Zero-shot Face Anti-spoofing”, Oral Presentation, CVPR. 6/2019
- “Dense Face Alignment”, Midwest Vision Workshop. 4/2017

## TECHNICAL SKILLS

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**Languages:** Python, C/C++, Java, Matlab, HTML, R, Bash

**Tools:** Tensorflow, PyTorch, Caffe, MatConvNet, Git, OpenCV, L<sup>A</sup>T<sub>E</sub>X

**Systems:** Linux, MacOS, Windows