# Yaojie Liu

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## Experience

**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

**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

I have >1300 citations according to Google Scholar, and my **h-index** is 9. (* denotes equal contribution)

*Conference Papers*:

1. **Yaojie Liu***, Andrew Hou*, Xinyu Huang, Liu Ren, Xiaoming Liu, "Blind Removal of Facial Foreign Shadows," *Proc. British Machine Vision Conference (BMVC)*, 2022.
2. Xiao Guo, **Yaojie Liu**, Anil Jain, Xiaoming Liu, "Multi-domain Learning for Updating Face Anti-spoofing Models," *Proc. European Conference of Commputer Vision (ECCV)*, 2022. (**Oral**). [PDF, Code]
3. Hsin-Ping Huang, Deqing Sun, **Yaojie Liu**, Wen-Sheng Chu, Taihong Xiao, Jinwei Yuan, Hartwig Adam, Ming-Hsuan Yang, "Adaptive Transformers for Robust Few-shot Cross-domain Face Anti-spoofing," *Proc. European Conference of Commputer Vision (ECCV)*, 2022. (20% Acceptance Rate). [PDF]
4. **Yaojie Liu**, Jeol Stehouwer, Xiaoming Liu, "On Disentangling Spoof Traces for Generic Face Anti-Spoofing," *Proc. European Conference of Commputer Vision (ECCV)*, 2020. (26% Acceptance Rate) [PDF, Code, Short Video, Long Video]
5. 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]
6. **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]
7. **Yaojie Liu***, Amin Jourabloo*, Xiaoming Liu, "Face De-Spoofing: Anti-Spoofing via Noise Modeling," *Proc. European Conference of Commputer Vision (ECCV)*, 2018. (31.8% Acceptance Rate) [PDF, Code, Poster]
8. **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]

9. **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]
10. **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]
11. 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]
12. **Yaojie Liu**, Chang Shu, "A Comparison of Image Inpainting Techniques." *International Conference on Graphic and Image Processing (ICGIP)*, 2015. [Link]

*Journal Papers*:

13. Xiaohong Liu, **Yaojie Liu**, Jun Chen, Xiaoming Liu, "PSCC-Net: Progressive Spatio-Channel Correlation Network for Image Manipulation Detection and Localization," in IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), doi:10.1109/TCSVT.2022.3189545, 2022. [PDF]
14. **Yaojie Liu**, Xiaoming Liu, "Spoof Trace Disentanglement for Generic Face Anti-Spoofing" in IEEE Transaction on Pattern Analysis and Machine Intelligence (PAMI), doi:10.1109/TPAMI.2022.3176387, 2022. [PDF]
15. 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]
16. **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*:

17. **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]
- **Area Chair**: BMVC´22
- **Conference Reviewer**: CVPR´19-22, ICCV´19-21, ECCV´20-22, NeurIPS´20-22, AAAI´20-22, ICML´21-22, ICLR´22, WACV´18-22, ACCV´20-22, BTAS´18, ICB´19, ICME´20-21, PRCV´19-20
- **Journal Reviewer**: TPAMI, IJCV, TIP, TIFS, CVIU, Neurocomputing, Pattern Recognition, JEI, Image and Vision Computing, TBIOM, TOMM, IET Computer Vision, IEEE Access, JCST

- **Mentoring**:
  - Yiyou Sun (Google, Summer 2022 - Fall 2022)
  - Xiao Guo (MSU, Summer 2021 - Fall 2021)
  - Xiaohong Liu (MSU, Summer 2020 - Fall 2020)
  - Xiaohan Zhang (MSU, Fall 2016 - Spring 2017)
  - William Ren (MSU, 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

**Languages**: Python, C/C++, Java, Shell Script, Matlab, HTML, R
**Tools**: Tensorflow, PyTorch, Caffe, MatConvNet, Git, OpenCV, LaTeX
**Systems**: Linux, MacOS, Windows