Yaojie Liu

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EDUCATION

Ph.D., Computer Science, Michigan State University, USA   *05/2016 - present*
- 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   *09/2014 - 05/2016*
- Advisor: Aleix Martinez
- Project: Global and Local Fitting of Facial Landmarks and Action Units

B.E., Communication Engineering, UESTC, China   *09/2014 - 05/2016*
- Advisor: Chang Shu
- Thesis: Image Inpainting

EXPERIENCE

Research Intern, Bosch US   *05/2020 - 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

PUBLICATIONS

I have >600 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 *CVPR*, 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 *CVPR*, 2021.

3. **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]

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 Commputer 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

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