YIQIN ZHAO

100 Institute Rd – Worcester, MA, 01609
(+1) (508)736-5839 ◇ yzhao11@wpi.edu ◇ https://yiqinzhao.me ◇ Google Scholar

EDUCATION

Worcester Polytechnic Institute, Worcester, MA, USA — *Aug. 2021 - Present*
Ph.D. in Computer Science — *Expected Graduation: May, 2025*
Advisor: Prof. Tian Guo

Worcester Polytechnic Institute, Worcester, MA, USA — *Aug. 2019 - June 2021*
M.S. in Computer Science
Thesis: *Rethink Lighting Estimation for 3D Vision-enabled Mobile Augmented Reality*
Advisor: Prof. Tian Guo

Tianjin Normal University, Tianjin, China — *Sept. 2015 - June 2019*
B.Eng. in Software Engineering
Advisor: Prof. Ziping Zhao

PUBLICATIONS

Yiqin Zhao has co-authored papers in top-tier mobile system, computer vision, and machine learning conferences. As of 02/2024, his work has been cited over 300 times. Below are his selected publications:

Conferences, Journals, and Submissions

HotMobile'24 "Mobile AR Depth Estimation: Challenges & Prospects" Ashkan Ganj, **Yiqin Zhao**, Tian Guo. The Twenty-fifth International Workshop on Mobile Computing Systems and Applications (HotMobile) 2024.

SA'23 TC "Portrait Expression Editing With Mobile Photo Sequence" **Yiqin Zhao**, Rohit Pandey, Yinda Zhang, Ruofei Du, Feitong Tan, Chetan Ramaiah, Tian Guo, Sean Fanello. The 16th ACM SIGGRAPH Conference and Exhibition on Computer Graphics and Interactive Techniques in Asia (SigGraph Asia) 2023 Technical Communication.

ImmerCom'23 "Toward Scalable and Controllable AR Experimentation" Ashkan Ganj, **Yiqin Zhao**, Federico Galbiati, Tian Guo. 1st ACM Workshop on Mobile Immersive Computing, Networking, and Systems (ImmerCom 2023). Best paper runner-up.

HotMobile'23 "Multi-Camera Lighting Estimation for Photorealistic Front-Facing Mobile Augmented Reality" **Yiqin Zhao**, Sean Fanello, Tian Guo. The Twenty-fourth International Workshop on Mobile Computing Systems and Applications (HotMobile) 2023.

IMWUT'22 "LitAR: Visually Coherent Lighting for Mobile Augmented Reality". **Yiqin Zhao**, Chongyang Ma, Haibin Huang, Tian Guo. The Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) 2022, journal paper.

ACMMM'22 "Privacy-preserving Reflection Rendering for Augmented Reality" **Yiqin Zhao**, Sheng Wei and Tian Guo. ACM International Conference on Multimedia (ACM MM) 2022.

MobiSys'21 "Xihe: A 3D Vision-based Lighting Estimation Framework for Mobile Augmented Reality." **Yiqin Zhao**, and Tian Guo. The 19th annual international conference on mobile systems, 2021. Artifacts Evaluated – Functional

ECCV'20 "PointAR: Efficient Lighting Estimation for Mobile Augmented Reality." **Yiqin Zhao**, and Tian Guo. The 16th European Conference On Computer Vision, 2020.

— *Publications prior to graduate school.*

Access'19 "Exploring Deep Spectrum Representations via Attention-Based Recurrent and Convolutional Neural Networks for Speech Emotion Recognition." Ziping Zhao, Zhongtian Bao, **Yiqin Zhao**, Zixing Zhang, Nicholas Cummins, Zhao Ren, Björn W. Schuller. IEEE Access Journal, 2019

Interspeech'18 "Exploring spatio-temporal representations by integrating attention-based bidirectional-LSTM-RNNs and FCNs for speech emotion recognition." Ziping Zhao, Yu Zheng, Zixing Zhang, Haishuai Wang, **Yiqin Zhao**, Chao Li. Conference of the International Speech Communication Association, 2018

ASMMC-MMAC'18 "Deep spectrum feature representations for speech emotion recognition." Ziping Zhao, **Yiqin Zhao**, Zhongtian Bao, Haishuai Wang, Zixing Zhang, Chao Li. The 4th Workshop on Affective Social Multimedia Computing and first Multi-Modal Affective Computing of Large-Scale Multimedia, 2018

Peer-reviewed Posters and Demos

HotMobile'24 "ARFlow: A Framework for Simplifying AR Experimentation Workflow" **Yiqin Zhao**, and Tian Guo. The 25th International Workshop on Mobile Computing Systems and Applications, 2024, demo paper. **Code:** https://github.com/cake-lab/ARFlow

VR'22 "FusedAR Adaptive Environment Lighting Reconstruction for Visually Coherent Mobile AR Rendering" **Yiqin Zhao**, and Tian Guo. The IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR) 2022, abstract poster paper.

HotMobile'20 "PointAR: Efficient Lighting Estimation for Mobile Augmented Reality." **Yiqin Zhao**, and Tian Guo. The 21st International Workshop on Mobile Computing Systems and Applications, 2020, abstract poster paper.

Patent Applications

- Google Classified Patent. Sean Fanello, **Yiqin Zhao**, Rohit Pandey, Yinda Zhang, Feitong Tan, Ruofei Du, and Chetan Ramaiah. Filing date November 16, 2023.
- Visually Coherent Lighting for Mobile Augmented Reality. **Yiqin Zhao**, and Tian Guo. US utility patent application number: 18/237,095, filing date August 23, 2023.

PROFESSIONAL EXPERIENCES

Adobe Research, San Jose, CA, USA — *May, 2024 - Aug, 2024*
(Incoming) Research Scientist Intern

Worcester Polytechnic Institute, Worcester, MA, USA — *Aug, 2019 - Present*
Research Assistant

Google AR&VR, Mountain View, CA, USA — *Aug. 2022 - May. 2023*
Student Researcher Intern (Part-time)

Google AR&VR, Mountain View, CA, USA — *May. 2022 - Aug. 2022*
Student Researcher Intern (Full-time)

Kuaishou Technology, Palo Alto, CA, USA — *Jan. 2022 - May. 2022*
Research Intern

Baidu, Haidian, Beijing, China — *July. 2018 - Sept. 2018*
Software Engineer Intern

PROPOSAL WRITING

User-Driven Physical Data Privacy in Mobile Augmented Reality
PI: Dr. Tian Guo
Designed and wrote two out of three physical data privacy protection mechanisms.
Submitted to Google Research scholar program 2023.

Dual-Camera Lighting Estimation for Mobile AR
PI: Dr. Tian Guo
Designed and wrote two out of three tasks for dual camera lighting estimation.
Submitted to Google Research scholar program 2022. (not awarded)

PROJECT EXPERIENCES

Google AR&VR, Mountain View, CA, USA *May. 2022 - May. 2023*
Portrait Editing for Mobile Devices
Student Researcher, Advisor: Dr. Sean Fanello.

- The goal of this project is to design and implement high-quality portrait editing systems that preserve the user's identity during editing and are deployable to resource-constrained mobile devices.
- Proposed a novel mobile phone-friendly design that uses near-time photos to achieve high-quality portrait editing.
- Research paper accepted at SigGraph Asia 2023 Technical Communication.
- Submitted a patent.

Worcester Polytechnic Institute, Worcester, MA, USA *Feb. 2021 - Nov. 2021*
Visually Coherent Lighting for Mobile Augmented Reality
Research Assistant, Advisor: Prof. Tian Guo. Artifacts: Project Page, Code

- Designed a mobile-oriented pipeline based on investigations of user and device dynamics of AR applications to generate high-fidelity and spatially-variant environment lighting representation.
- Developed tools for real-world environment lighting data acquisition, on-device system debugging, and end-to-end system evaluations.
- Developed an Unreal Engine-based simulation environment to perform quantitative and qualitative evaluations of controlled user dynamic variables.
- Research paper published at *IMWUT'22 (UbiComp'22).*

Worcester Polytechnic Institute, Worcester, MA, USA *Mar. 2020 - Feb. 2021*
A 3D Vision-based Lighting Estimation Framework for Mobile AR
Research Assistant, Advisor: Prof. Tian Guo. Artifacts: Project Page, Code

- Designed lighting estimation system control policies jointly with the estimation deep model to optimize network transfer and end-to-end inference time.
- Designed and implemented a system prototype with an edge-based deep model inference server and a Unity-based iOS app, which includes on-device real-time point cloud GPU processing.
- Research paper published at *MobiSys'21.*

Worcester Polytechnic Institute, Worcester, MA, USA *Aug. 2019 - Mar. 2020*
Efficient Low-frequency Lighting Estimation for Mobile AR
Research Assistant, Advisor: Prof. Tian Guo. Artifacts: Project Page, Code

- Proposed a spatially-variant lighting estimation pipeline for mobile AR by incorporating 3D physical knowledge with point cloud-based learning components.

- Our model improved estimation accuracy while substantially reducing computation complexities.
- Research paper published at *HotMobile'20* and *ECCV'20*.

Tianjin Normal University, Tianjin, China *Dec. 2016 - May 2018*
Learning to Recognize Emotions from Speech
Undergraduate Research Assistant, Advisor: Prof. Ziping Zhao

- *Research topic*: affective computing and applied machine learning.
- Designed and implemented an attention-based neural network architecture (prior to transformer time) that effectively learns the spatial and temporal representations of human emotions from conversation speech audio spectrogram signals.
- Research paper published at *Interspeech'18* and *IEEE Access'19*.

STUDENT COMMUNITY LEADERSHIP EXPERIENCE

Founder of the TJNU iOS Club, Tianjin Normal University *2017 - 2018*
TJNU iOS Club is a college student association developed to democratize and support innovative mobile application development through the Apple device ecosystem. The iOS Club program is a cross-university program in mainland China supported by leading Chinese academic institutes and Apple Inc.

- Organized biweekly workshops on mobile application design and development on campus.
- Led educational programming student activities with Apple China at the local Apple Store.
- Led team to attend national iOS Club summer and winter camps held by Apple China.
- Developed the Tianjin Normal University iOS Club to be the largest and most influential student technology club in the department.

SERVICES AND AWARDS

Academic services

- UbiComp 2022 student volunteer.
- Paper reviewer: ICDCS'23, CAAI'23, MMSys'20

Student Travel Grant

- ACM HotMobile 2023 Student Travel Grant. *Jan 2023*
- ACM HotMobile 2020 Student Travel Grant. *Jan 2020*

China Collegiate Computing Contest, Apple Inc., China
This contest is held by Tsinghua University, Zhejiang University, and Apple, Inc. to students from the great China area to develop and design innovative mobile applications.

- 2017 national third prize, top 6% *Oct. 2017.*
- 2016 national third prize, top 10% *Oct. 2016*

Tianjin Normal University Scholarship, Tianjin Normal University

- 2018 - 2019 academic first-grade scholarship, top 10% *May 2019*
- Wang Kechang Culture and Technology Innovation Scholarship, $\leq 1\%$ *Sept. 2018*
- 2017 - 2018 academic year top grade scholarship, top 5% *Sept. 2018*
- 2016 - 2017 academic year second-grade scholarship, top 20% *Sept. 2017*
- 2015 - 2016 academic year first-grade scholarship, top 10% *Sept. 2016*