

Emily Kuang

PHD STUDENT IN HCI · UX RESEARCHER · GOOGLE PHD FELLOW

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*At the forefront of **Human-Computer Interaction (HCI)**, **Artificial Intelligence (AI)**, and **User Experience (UX)**, my research focuses on designing and evaluating human-AI collaborative tools for improved usability and UX analysis. Honored with the 2023 **Google PhD Fellowship in HCI**, my work not only advances technology but also champions accessibility, focusing on inclusive computing education and assistive technology for diverse user groups.*

Education

Rochester Institute of Technology

PHD IN COMPUTING AND INFORMATION SCIENCES

Rochester, NY, US

Aug 2020 - present

- Advised by Dr. Kristen Shinohara and Dr. Mingming Fan
- Participating in the AWARE-AI NSF Research Traineeship (NRT) Program

University of Waterloo

BASc IN BIOMEDICAL ENGINEERING

Waterloo, ON, CA

Sept 2015 - Apr 2020

- Capstone advised by Dr. John Zelek
- Graduated on Dean's Honour List

Experience

Rochester Institute of Technology

GRADUATE RESEARCH ASSISTANT

Rochester, NY, US

Aug 2020 - present

- Conduct HCI research on the human-centered design of AI-powered technologies, focusing on visual analytic tools and conversational assistants to support usability analysis
- Design, conduct, and analyze research studies employing a variety of methods including interviews, surveys, design probes, usability studies, and quantitative experiments
- Author technical papers for publication and develop dissemination plans

Meta, Reality Labs

UX RESEARCH INTERN

Seattle, WA, US

May 2023 - Aug 2023

- Designed and led a 20-participant interview study about using VR headsets, efficiently collaborating with research vendors
- Actively contributed to project brainstorming workshops and internal product demos
- Effectively communicated findings to diverse product stakeholders, promoting a comprehensive understanding of user perspectives and needs

Meta, Reality Labs

UX RESEARCH INTERN

Burlingame, CA, US

May 2022 - Aug 2022

- Conducted literature reviews and authored reports to inform the design of Ray-ban | Meta smartglasses
- Designed and conducted a user study with 30 participants to investigate audio performance
- Presented results to >100 product stakeholders including researchers, engineers, and cross-functional partners; recommendations led to changes in product design

Uncharted Software Inc., ASKE-E Team

RESEARCH INTERN

Toronto, ON, CA

May 2021 - Aug 2021

- Worked on the DARPA Automating Scientific Knowledge Extraction (ASKE) program
- Designed wireframes and implemented new features in the human-machine interface (HMI) of a visual analytics system for multi-scale graph analysis and knowledge discovery

Huawei Technologies Canada, Human-Machine Interaction (HMI) Lab

RESEARCH ENGINEER

Markham, ON, CA

Jan - Aug 2019, May - Aug 2020

- Trained machine learning models for gesture recognition using Tensorflow
- Designed and conducted user experiments to explore novel interaction techniques on large screens using mid-air gesture input; presented at the Huawei Developer Conference 2019

University of Waterloo, Vision and Image Processing (VIP) Lab

RESEARCH ASSISTANT

Waterloo, ON, CA

May 2016 - Apr 2018

- Designed and 3D-printed a lens-free microscope and a smartphone spectrometer
- Conducted testing with biological specimens to achieve optical resolution in the nm range

Publications

CONFERENCE PAPERS (PEER-REVIEWED)

- [C.12] **Bridging the Literacy Gap for Adults: Understanding How Streamers Teach Adult Literacy on Livestreaming Platforms**
SHIHAN FU, JIANHAO CHEN, [EMILY KUANG](#), MINGMING FAN
Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems [Acceptance rate: 26.3%], 2024
DOI: 10.1145/3613904.3642423 (To appear)
- [C.11] **Designing Unobtrusive Modulated Electrotactile Feedback on Fingertip Edge to Assist Blind and Low Vision (BLV) People in Comprehending Charts**
CHUTIAN JIANG, YINAN FAN, JUNAN XIE, [EMILY KUANG](#), KAIHAO ZHANG, MINGMING FAN
Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems [Acceptance rate: 26.3%], 2024
DOI: 10.1145/3613904.3642546 (To appear, first two authors contributed equally)
- [C.10] **Exploring the Opportunity of Augmented Reality (AR) in Supporting Older Adults Explore and Learn Smartphone Applications**
XIAOFU JIN, WAI TONG, XIAOYING WEI, XIAN WANG, [EMILY KUANG](#), XIAOYU MO, HUAMIN QU, MINGMING FAN
Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems [Acceptance rate: 26.3%], 2024
DOI: 10.1145/3613904.3641901 (To appear)
- [C.9] **Mapping Accessibility Assignments into Core Computer Science Topics: An Empirical Study with Interviews and Surveys of Instructors and Students**
[EMILY KUANG](#), SELAH BELLSCHIEDT, DI PHAM, KRISTEN SHINOHARA, CATHERINE M. BAKER, YASMINE N. ELGLALY
Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems [Acceptance rate: 26.3%], 2024
DOI: 10.1145/3613904.3642097 (To appear)
- [C.8] **Enhancing UX Evaluation Through Collaboration with Conversational AI Assistants: Effects of Proactive Dialogue and Timing**
[EMILY KUANG](#), MINGHAO LI, MINGMING FAN, KRISTEN SHINOHARA
Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems [Acceptance rate: 26.3%], 2024
DOI: 10.1145/3613904.3642168 (To appear)
- [C.7] **Understanding Strategies and Challenges of Conducting Daily Data Analysis (DDA) Among Blind and Low-vision People**
CHUTIAN JIANG, WENTAO LEI, [EMILY KUANG](#), TENG HAN, MINGMING FAN
Proceedings of the 25th ACM SIGACCESS Conference on Computers and Accessibility [Acceptance rate: 30.2%], 2023
DOI: 10.1145/3597638.3608423
- [C.6] **Enhancing Older Adults' Gesture Typing Experience Using the T9 Keyboard on Small Touchscreen Devices**
[EMILY KUANG](#), RUIHUAN CHEN, MINGMING FAN
Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems [Acceptance rate: 27.6%], 2023
DOI: 10.1145/3544548.3581105
- [C.5] **Collaboration with Conversational AI Assistants for UX Evaluation: Questions and How to Ask them (Voice vs. Text)**
[EMILY KUANG](#), EHSAN JAHANGIRZADEH SOURE, MINGMING FAN, JIAN ZHAO, KRISTEN SHINOHARA

Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems [Acceptance rate: 27.6%], 2023
DOI: 10.1145/3544548.3581247

[C.4] **Bridging the Generational Gap: Exploring How Virtual Reality Supports Remote Communication Between Grandparents and Grandchildren**

XIAOYING WEI, YIZHENG GU, [EMILY KUANG](#), XIAN WANG, BEIYAN CAO, XIAOFU JIN, MINGMING FAN

Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems [Acceptance rate: 27.6%], 2023
DOI: 10.1145/3544548.3581405

[C.3] **“Merging Results Is No Easy Task”: An International Survey Study of Collaborative Data Analysis Practices Among UX Practitioners**

[EMILY KUANG](#), XIAOFU JIN, MINGMING FAN

Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems [Acceptance rate: 24.7%], 2022
DOI: 10.1145/3491102.3517647

[C.2] **“Too old to bank digitally?”: A Survey of Banking Practices and Challenges Among Older Adults in China**

XIAOFU JIN, [EMILY KUANG](#), MINGMING FAN

Proceedings of the 2021 ACM Designing Interactive Systems Conference [Acceptance rate: 27.7%], 2021
DOI: 10.1145/3461778.3462127

[C.1] **Compensated lens-free light field spectroscopy**

AMENEH BOROOMAND, MOHAMMAD SHAFIEE, LINDA WAND, [EMILY KUANG](#), FARNOUD KAZEMZADEH, ALEXANDER WONG

International Conference on Inverse Problems in Engineering, 2017

JOURNAL ARTICLES (PEER-REVIEWED)

[J.3] **CoUX: Collaborative Visual Analysis of Think-Aloud Usability Test Videos for Digital Interfaces**

EHSAN JAHANGIRZADEH SOURE, [EMILY KUANG](#), MINGMING FAN, JIAN ZHAO

IEEE Transactions on Visualization and Computer Graphics 28.1 (2022) pp. 643–653. 2022
DOI: 10.1109/TVCG.2021.3114822 (First two authors contributed equally)

[J.2] **Compact, Field-Portable Lens-free Microscope using Superresolution Spatio-Spectral Light-field Fusion**

FARNOUD KAZEMZADEH, [EMILY KUANG](#), ALEXANDER WONG

Journal of Computational Vision and Imaging Systems 2.1 (2016). 2016
DOI: 10.15353/vsnl.v2i1.105

[J.1] **Enhanced Smartphone Spectroscopy via High-throughput Computational Slit**

[EMILY KUANG](#), FARNOUD KAZEMZADEH, ALEXANDER WONG

Journal of Computational Vision and Imaging Systems 2.1 (2016). 2016
DOI: 10.15353/vsnl.v2i1.97

EXTENDED ABSTRACTS & WORKSHOP PAPERS (PEER-REVIEWED)

[P.2] **Crafting Human-AI Collaborative Analysis for User Experience Evaluation**

[EMILY KUANG](#)

In Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems, 2023
DOI: 10.1145/3544549.3577042

[P.1] **A Multi-scale Visual Analytics Approach for Exploring Biomedical Knowledge**

FAHD HUSAIN, ROSA ROMERO-GÓMEZ, [EMILY KUANG](#), DARIO SEGURA, ADAM CAROLLI, LAI CHUNG LIU, MANFRED CHEUNG, YOHANN PARIS

Proceedings of the Workshop on Visual Analytics in Healthcare (VAHC), 2021
DOI: 10.48550/arXiv.2109.06828 (Best Paper Award)

Honors and Awards

RECEIVED DURING PHD

- 2023 **Google Ph.D. Fellowship in Human-Computer Interaction**, Google
- 2022 **AWARE-AI NRT Seed Funding Award (\$1000 USD)**, RIT
- 2022 **Department Nomination for Microsoft Research Ph.D. Fellowship**, RIT
- 2021 **Best Paper Award**, Workshop on Visual Analytics in Healthcare (VAHC)
- 2020 **Merit-based Ph.D. Scholarship**, RIT

RECEIVED DURING UNDERGRADUATE

- 2018 **Experience Award**, Natural Sciences and Engineering Research Council of Canada
- 2018 **President's Research Award**, University of Waterloo
- 2017 **President's Research Award**, University of Waterloo
- 2016 **Undergraduate Student Research Award**, NSERC
- 2015 **President's Scholarship of Distinction**, University of Waterloo

Invited Talks and Poster Presentations

- Jan 2024 **Invited panelist**, AWARE-AI NRT Retreat: Session on Resume Building & Internships *Remote*
- Nov 2023 **Invited speaker**, Youth Professional Career Development Series *Remote*
- Apr 2023 **Poster presenter**, CHI Doctoral Consortium *Hamburg, Germany*
- Oct 2022 **Poster presenter**, RIT Artificial Intelligence Summit *Rochester, NY*
- Apr 2022 **Poster presenter**, CRA-WP Grad Cohort for Women *New Orleans, LA*

Teaching Experience

ISTE-798 Future Interactions

TEACHING ASSISTANT

- Collaborate with the course instructor to plan and organize course materials
- Mentor students and provide constructive feedback on assignments, projects, and research

GUEST LECTURES

- Sept 2023 **Human-AI Collaboration for UX Evaluation**, PhD Research Colloquium (CISC896) *RIT*
- Apr 2023 **Older Adults' Gesture Typing Experience**, Design For Accessibility (ISTE266) *RIT*
- Nov 2021 **Visual Analysis of Think-Aloud Usability Test Videos**, Visual Analytics (ISTE782) *RIT*

Service

SERVICE TO THE PROFESSION

- 2023 **Associate Chair**, Chinese CHI 2023
- 2023 **Reviewer: Technical Papers**, CHI 2024 *Special Recognition*
- 2023 **Reviewer: Technical Papers**, CSCW 2023
- 2023 **Reviewer: Technical Papers**, Frontiers in Computer Science
- 2022 **Reviewer: Technical Papers**, CHI 2023 *Special Recognition*
- 2022 **Student Volunteer (In-person)**, CHI 2022
- 2021 **Reviewer: Technical Papers**, CHI 2022
- 2021 **Student Volunteer (Virtual)**, VIS 2021
- 2021 **Reviewer: Late Breaking Work**, Chinese CHI 2021

SERVICE TO THE UNIVERSITY

- 2023 **PhD Student Representative**, GRAD Open House
- 2023 **Trainee Council Representative**, AWARE-AI NSF Research Traineeship
- 2022 **Project Judge**, Genius Olympiad

Additional Professional Experience

North Inc. (now acquired by Google)

COMPUTER VISION DEVELOPER

Kitchener, ON, CA

Apr 2018 - Aug 2018

- Designed algorithm to quantify image sharpness for multi-camera system assembly

Synaptive Medical Inc.

OPTICS ENGINEERING INTERN

Toronto, ON, CA

Sept 2017- Dec 2017

- Investigated the stabilization of stereoscopic videos for a neurosurgical robot

St. Michael's Hospital

MEDICAL IMAGING RESEARCH ASSISTANT

Toronto, ON, CA

Jan 2017 - Apr 2017

- Worked on a video processing pipeline for non-invasive detection of diabetic foot ulcers

Media Coverage

- 10/16/2023 **Two RIT students earn Google Ph.D. Fellowships for AI computing research,**
- 10/13/2023 **Google PhD Fellowship recipients,**

RIT News

Google Research