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 — *Rochester, NY, US*

PhD in Computing and Information Sciences — *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 — *Waterloo, ON, CA*

BASc in Biomedical Engineering — *Sept 2015 - Apr 2020*

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

Experience

Rochester Institute of Technology — *Rochester, NY, US*

Graduate Research Assistant — *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 UX 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 — *Seattle, WA, US*

UX Research Intern — *May 2023 - Aug 2023*

- Designed and led a 20-participant interview study on VR headset user experiences, 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 — *Burlingame, CA, US*

UX Research Intern — *May 2022 - Aug 2022*

- Conducted literature reviews and authored reports on first-hand experiences to inform the design of Ray-ban | Meta smart-glasses
- 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 — *Toronto, ON, CA*

Research Intern — *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 *Markham, ON, CA*

Research Engineer *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 *Waterloo, ON, CA*

Research Assistant *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 (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 (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 (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 Bellscheidt, 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 (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 (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 *RIT*
Teaching Assistant *Jan 2024 - present*

- 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'24 *Special Recognition*
2023 **Reviewer: Technical Papers**, CSCW'23
2023 **Reviewer: Technical Papers**, Frontiers in Computer Science
2022 **Reviewer: Technical Papers**, CHI'23 *Special Recognition*
2022 **Student Volunteer (In-person)**, CHI'22
2021 **Reviewer: Technical Papers**, CHI'22
2021 **Student Volunteer (Virtual)**, VIS'21
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) *Kitchener, ON, CA*
Computer Vision Developer *Apr 2018 - Aug 2018*

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

Synaptive Medical Inc. *Toronto, ON, CA*
Optics Engineering Intern *Sept 2017- Dec 2017*

- Investigated the stabilization of stereoscopic videos for a neurosurgical robot

St. Michael's Hospital *Toronto, ON, CA*
Medical Imaging Research Assistant *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**, *RIT News*
10/13/2023 **Google PhD Fellowship recipients**, *Google Research*