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. This CV unfolds my journey of blending research with a commitment to inclusive, user-centered technology development.*

Education

Rochester Institute of Technology
New York, United States

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
Ontario, Canada

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, USA

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 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
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

Peer-Reviewed Conference Proceedings

[1] **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, 2024. (In press)

[2] **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, 2024. (In press)

[3] **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, 2024. (In press)

[4] **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 Baker, Yasmine Elglaly

Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems, 2024. (In press)

[5] **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, 2024. (In press)

[6] **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 International ACM SIGACCESS Conference on Computers and Accessibility, 2023, DOI: 10.1145/3597638.3608423

[7] **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, 2023, DOI: 10.1145/3544548.3581105

[8] **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, 2023, DOI: 10.1145/3544548.3581247

[9] **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, 2023, DOI: 10.1145/3544548.3581405

[10] **"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. 2022, DOI: 10.1145/3491102.3517647

[11] **"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, 2021, DOI: 10.1145/3461778.3462127

[12] **Compensated lens-free light field spectroscopy**

Ameneh Boroomand, Mohammad Javad Sahfiee, Linda Wand, Emily Kuang, Farnoud Kazemzadeh, Alexander Wong

International Conference on Inverse Problems in Engineering, 2017

Journal Articles

[1] **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 (2021) pp. 1–11. 2021, DOI: 10.1109/TVCG.2021.3114822. (First two authors contributed equally)

[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

[3] **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

Peer-Reviewed Extended Abstracts & Workshop Papers

[1] **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

[2] **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 Winner)

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 Winner**, 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 (NSERC)
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 Winter Retreat: Session on Resume Building and 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 — *Rochester, NY*

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	**Crafting Human-AI Collaborative Analysis for UX Evaluation**, PhD Research Colloquium (CISC896)	*RIT*
Apr 2023	**Enhancing 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**, ACM Conference on Human Factors in Computing Systems (CHI'24)
2023	**Reviewer: Technical Papers**, ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW'23)
2023	**Reviewer: Technical Papers**, Frontiers in Computer Science (Sec. Human-Media Interaction)
2022	**Reviewer: Technical Papers**, ACM Conference on Human Factors in Computing Systems (CHI'23)
2022	**Student Volunteer**, ACM Conference on Human Factors in Computing Systems (CHI'22) — *New Orleans, LA*
2021	**Reviewer: Technical Papers**, ACM Conference on Human Factors in Computing Systems (CHI'22)
2021	**Student Volunteer**, IEEE Visualization Conference (VIS'21) — *Remote*
2021	**Reviewer: Late Breaking Work**, Chinese CHI 2021

Service to the University

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*

Computer Vision Developer — *Apr 2018 - Aug 2018*

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

Synaptive Medical Inc. — *Toronto, ON*

Optics Engineering Intern — *Sept 2017- Dec 2017*

- Investigated the stabilization of stereoscopic videos for a neurosurgical robot

St. Michael's Hospital — *Toronto, ON*

Medical Imaging Research Assistant — *Jan 2017 - Apr 2017*

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