

# 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

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### 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, first two authors contributed equally)*
- [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 BELLSCHIEDT, DI PHAM, KRISTEN SHINOHARA, CATHERINE M. BAKER, YASMINE N. 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 WANG, [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**

EHASAN 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)

[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 Award)

## Honors and Awards

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### 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 (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

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- 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

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### 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

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### SERVICE TO THE PROFESSION

- 2023 **Associate Chair**, Chinese CHI 2023
- 2023 **Reviewer: Technical Papers**, ACM Conference on Human Factors in Computing Systems (CHI'24) Special Recognition
- 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) Special Recognition
- 2022 **Student Volunteer (In-person)**, ACM Conference on Human Factors in Computing Systems (CHI'22)
- 2021 **Reviewer: Technical Papers**, ACM Conference on Human Factors in Computing Systems (CHI'22)
- 2021 **Student Volunteer (Virtual)**, IEEE Visualization Conference (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

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### 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

## Media Coverage

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