

Emily Kuang

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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
- Committee members: Dr. Cecilia O Alm, Dr. Garreth Tigwell, and Dr. Jian Zhao
- 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 research at the intersection of HCI and AI, focusing on the human-centered design of human-AI collaborative tools to enhance usability analysis
- Design, execute, and analyze diverse research studies using methods such as interviews, surveys, design probes, usability tests, and quantitative experiments
- Author technical papers for peer-reviewed publication and create strategic dissemination plans to share research insights with broader audiences

Autodesk, HCI & Visualization Research Group

RESEARCH INTERN

Toronto, ON, CA

May 2024 - Sept 2024

- Led a mixed-methods research project on integrating generative AI into 3D computer-aided design
- Authored a paper detailing novel findings (currently under review), influencing cross-team research initiatives
- Delivered high-impact presentations, including a direct presentation to the Autodesk CEO and VP of Research, effectively communicating research insights

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
- Played an active role in project brainstorming workshops and internal product demonstrations, driving innovative solutions
- Effectively communicated research findings to diverse product stakeholders, fostering a deep understanding of user needs and perspectives to guide product development

Meta, Reality Labs

UX RESEARCH INTERN

Burlingame, CA, US

May 2022 - Aug 2022

- Conducted in-depth 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 study results to over 100 stakeholders, including researchers, engineers, and cross-functional teams, leading to product design changes based on data-driven recommendations

Uncharted Software Inc., ASKE-E Team

Toronto, ON, CA

RESEARCH INTERN

May 2021 - Aug 2021

- Contributed to the DARPA Automating Scientific Knowledge Extraction (ASKE) program, driving advancements in AI-powered knowledge extraction systems
- Designed wireframes and implemented new features for the human-machine interface (HMI) of a visual analytics system, enabling multi-scale graph analysis and facilitating knowledge discovery

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

Markham, ON, CA

RESEARCH ENGINEER

Jan - Aug 2019, May - Aug 2020

- Developed and trained machine learning models for gesture recognition utilizing TensorFlow, enhancing the accuracy and responsiveness of gesture-based interactions
- Conducted user experiments to explore innovative mid-air and edge-based interaction techniques, contributing insights 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 smartphone spectrometer, advancing portable optical technology
- Conducted tests to validate the precision and effectiveness of the devices

Publications

Note: In HCI, conference proceedings are the primary way to publish research. Conference papers undergo peer review, typically with 2-3 external reviewers and 2 associate chair reviewers. Acceptance rates for the main HCI conferences range between 20% and 25%, making them highly competitive. Authors with equal contributions are indicated with an asterisk ().*

CONFERENCE PAPERS (PEER-REVIEWED)

- [C.14] **AI as a Bridge Across Ages: Exploring The Opportunities of Artificial Intelligence in Supporting Inter-Generational Communication in Virtual Reality**

QIUXIN DU*, XIAOYING WEI*, JIAWEI LI, **EMILY KUANG**, JIE HAO, DONGDONG WEN, MINGMING FAN

Proceedings of the ACM on Human-Computer Interaction. CSCW. 2024 (In press)

- [C.13] **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](https://doi.org/10.1145/3613904.3642423)

- [C.12] **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](https://doi.org/10.1145/3613904.3642546) Best Paper Honorable Mention (Top 5%) 🌟

- [C.11] **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](https://doi.org/10.1145/3613904.3641901)

- [C.10] **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](https://doi.org/10.1145/3613904.3642097)

- [C.9] **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](https://doi.org/10.1145/3613904.3642168)

- [C.8] **Exploring the Impact of Artificial Intelligence-Generated Content (AIGC) Tools on Social Dynamics in UX Collaboration**

ZIYAN WANG, LUYAO SHEN, **EMILY KUANG**, SHUMENG ZHANG, MINGMING FAN

Proceedings of the 2024 ACM Conference on Designing Interactive Systems [Acceptance rate: 27.4%], 2024

DOI: [10.1145/3643834.3660703](https://doi.org/10.1145/3643834.3660703)

- [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](https://doi.org/10.1145/3597638.3608423)

- [C.6] **Enhancing Older Adults' Gesture Typing Experience Using the T9 Keyboard on Small Touchscreen Devices**

EMILY KUANG, RUIHUA 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1145/3461778.3462127)

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

AMENEH BOROOMAND, MOHAMMAD SHAFIEE, LINDA WANG, **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. 281 pp. 643–653. 2022

DOI: [10.1109/TVCG.2021.3114822](https://doi.org/10.1109/TVCG.2021.3114822)

- [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. 21. 2016

DOI: [10.15353/vsnl.v2i1.105](https://doi.org/10.15353/vsnl.v2i1.105)

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

EMILY KUANG, FARNOUD KAZEMZADEH, ALEXANDER WONG

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](https://doi.org/10.1145/3544549.3577042) (Accepted to the Doctoral Consortium)

[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: [10.1109/VAHC53616.2021.00010](https://doi.org/10.1109/VAHC53616.2021.00010) Best Paper Award 🏆

Honors and Awards

RECEIVED DURING PHD

- 2024 **Best Paper Honorable Mention Award (Top 5%) [C.12]**, CHI
- 2024 **Outstanding Graduate Student Award**, RIT
- 2023 **Google Ph.D. Fellowship in Human-Computer Interaction**, Google
- 2022 **AWARE-AI NRT Seed Funding Award**, RIT
- 2022 **Department Nomination for Microsoft Research Ph.D. Fellowship**, RIT
- 2021 **Best Paper Award [P.1]**, 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

- Sept 2024 **Poster presenter**, AWARE-AI Inter-institutional NRT+ Summit *Rochester, NY*
- Jun 2024 **Invited speaker**, Womxn in STEM Conference *Toronto, ON*
- Apr 2024 **Presenter**, RIT Graduate Showcase *Rochester, NY*
- Jan 2024 **Lead 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 - May 2024

- Collaborated with the course instructor to plan and organize course materials
- Mentored students and provided constructive feedback on assignments and research projects

GUEST LECTURES

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

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Service

SERVICE TO THE PROFESSION

I have reviewed 27 submissions to date, receiving 3 special recognitions for outstanding reviews.

Since 2021 **Reviewer**, CHI, CSCW, UIST, VIS, Chinese CHI, and Frontiers in Computer Science
2023-2024 **Associate Chair**, Chinese CHI 2023-2024
2024 **Session Chair**, CHI 2024
2021-2022 **Student Volunteer**, VIS 2021 (virtual), CHI 2022 (in-person)

SERVICE TO THE UNIVERSITY

2024 **Panel Organizer and Co-Chair**, AWARE-AI Inter-institutional NRT+ Summit
2023 **PhD Student Representative**, Board of Trustees Meeting
2023 **PhD Student Representative**, GRAD Open House
2023 **Trainee Council Representative**, AWARE-AI NSF Research Traineeship (2022-2023)
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

07/29/2024 **Autodesk Research Intern Spotlight Video**,
10/16/2023 **Two RIT students earn Google Ph.D. Fellowships for AI computing research**,
10/13/2023 **Google PhD Fellowship recipients**,
09/30/2023 **AWARE-AI NSF Research Traineeship Program Newsletter (Trainee Spotlight)**,

Autodesk Life
RIT News
Google Research
AWARE-AI NRT