Emily Kuang

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*I am a **Human-Computer Interaction (HCI)** and **Artificial Intelligence (AI)** researcher, who designs and evaluates human-AI collaborative tools that enhance usability analysis. I also lead and collaborate on accessibility projects that promote inclusive computing education and develop assistive technologies for diverse users. As one of only eight HCI **Google PhD Fellows** in 2023, I demonstrate the global impact of my research and my ability to secure highly competitive funding.*

Education

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

PhD in Computing and Information Sciences — *Aug 2020 - May 2025 (expected)*

- Thesis Title: *Crafting Human-AI Collaborative Analysis for Usability Evaluation*
- Advisor: Dr. Kristen Shinohara | Co-advisor: Dr. Mingming Fan
- Committee members: Dr. Cecilia O Alm, Dr. Garreth Tigwell, and Dr. Jian Zhao

University of Waterloo — *Waterloo, ON, CA*

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

- Capstone Topic: *Design and Development of a Behavior Tracking and Trigger Analysis Tool for People with Dementia*
- Graduated with Dean's Honour List recognition, having completed six internships

Experience

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

Graduate Research Assistant — *Aug 2020 - present*

- Conduct research in HCI, AI, and accessibility, focusing on human-AI collaborative tools that improve usability analysis
- Design and implement research prototypes, evaluating them through user-centered methods, including interviews, surveys, usability tests, and quantitative experiments
- Author technical papers and deliver presentations to disseminate research insights effectively
- Mentor and coordinate research assistants and students, overseeing their contributions across various projects

Autodesk, HCI & Visualization Research Group — *Toronto, ON, CA*

Research Intern — *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 CEO and VP of Research at Autodesk, effectively communicating key research insights

Meta, Reality Labs — *Seattle, WA, US*

UX Research Intern — *May 2023 - Aug 2023*

- Led a 20-participant interview study on VR headset usability, collaborating efficiently with external research vendors
- Drove innovative solutions in project brainstorming workshops and internal product demonstrations
- Effectively communicated research findings to diverse product stakeholders, fostering a deep understanding of user needs and perspectives to guide product development

Meta, Reality Labs — *Burlingame, CA, US*

UX Research Intern — *May 2022 - Aug 2022*

- Conducted comprehensive literature reviews and authored reports to guide the design of Ray-Ban | Meta smart glasses
- Designed and executed a user study with 30 participants to evaluate audio performance, providing recommendations for the optimal microphone configuration
- Presented study findings to over 100 stakeholders, including researchers, engineers, and cross-functional teams, resulting in data-driven product design changes

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, advancing AI-powered knowledge extraction systems
- Designed wireframes and implemented new features for the human-machine interface of a visual analytics system, enabling multi-scale graph analysis and facilitating knowledge discovery [P.1]

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

[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 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

[C.10] **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

doi: 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

[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

[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 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

[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

[J.1] **Enhanced Smartphone Spectroscopy via High-throughput Computational Slit**
Emily Kuang, Farnoud Kazemzadeh, Alexander Wong

Journal of Computational Vision and Imaging Systems. 21. 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 (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 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 NSF Research Traineeship Seed Funding Award**, RIT
2022 **Department Nomination for Microsoft Research Ph.D. Fellowship**, RIT
2022 **Travel Grant: Grad Cohort for Women Workshop**, Computing Research Association
2021 **Best Paper Award (Top One Paper) [P.1]**, Workshop on Visual Analytics in Healthcare
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)	*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

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

2021-2024	**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) — *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

07/29/2024	**Autodesk Research Intern Spotlight Video**,	*Autodesk Life*
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*
09/30/2023	**AWARE-AI NSF Research Traineeship Program Newsletter (Trainee Spotlight)**,	*AWARE-AI NRT*