EMILY KUANG

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https://emilykuang.github.io/

RESEARCH FOCUS

My research explores the intersection of Human-Computer Interaction (HCI), Artificial Intelligence (AI), and User Experience (UX). I design, evaluate, and improve human-AI collaborative tools to support usability and UX analysis. I am a recipient of the 2023 Google PhD Fellowship in HCI.

I also collaborate with other researchers on topics including accessibility in computing education, and accessible technology for older adults and blind and low-vision people.

EDUCATION

PhD in Computing and Information Sciences Aug 2020 - present
Rochester Institute of Technology, New York, United States
Advised by Dr. Kristen Shinohara and Dr. Mingming Fan
Participating in the AWARE-AI NSF Research Traineeship (NRT) Program

BASc in Biomedical Engineering Sept 2015 - Apr 2020
University of Waterloo, Ontario, Canada
Capstone advised by Dr. John Zelek
Graduated on Dean's Honour List

PROFESSIONAL EXPERIENCE

Rochester Institute of Technology Aug 2020 - present
Graduate Research Assistant

- Conduct HCI research on the human-centered design of AI-powered technologies, including visual analytics tools and conversational assistants to support UX analysis **[C.3, J.3, C.6]**
- 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 May 2023 - Aug 2023
UX Research Intern

- 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 May 2022 - Aug 2022
UX Research Intern

- 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 May 2021 - Aug 2021
Research Intern

- 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 **[W.1]**

Huawei Technologies Canada, Human-Machine Interaction (HMI) Lab Jan 2019 - Aug 2020
Research Engineer

- 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 May 2016 - Apr 2018
Research Assistant

- Designed and 3D-printed a lens-free microscope **[J.2]** and a smartphone spectrometer **[J.1]**
- Conducted testing with biological specimens to achieve optical resolution in the nm range

PEER-REVIEWED CONFERENCE PUBLICATIONS

C.7 Chutian Jiang, Wentao Lei, Emily Kuang, Teng Han, Mingming Fan. **Understanding Strategies and Challenges of Conducting Daily Data Analysis (DDA) Among Blind and Low-vision People.** *Proc. ACM Conference on Computers and Accessibility* (ASSETS), 2023.

C.6 Emily Kuang, Ehsan Jahangirzadeh Soure, Mingming Fan, Jian Zhao, Kristen Shinohara. **Collaboration with Conversational AI Assistants for UX Evaluation: Questions and How to Ask them (Voice vs. Text).** *Proc. ACM Conference on Human Factors in Computing Systems* (CHI), 2023. DOI: 10.1145/3544548.3581247

C.5 Emily Kuang, Ruihuan Chen, Mingming Fan. **Enhancing Older Adults' Gesture Typing Experience Using the T9 Keyboard on Small Touchscreen Devices.** *Proc. ACM Conference on Human Factors in Computing Systems* (CHI), 2023. DOI: 10.1145/3544548.3581105

C.4 Xiaoying Wei, Yizheng Gu, Emily Kuang, Xian Wang, Beiyan Cao, Xiaofu Jin, Mingming Fan. **Bridging the Generational Gap: Exploring How Virtual Reality Supports Remote Communication Between Grandparents and Grandchildren.** *Proc. ACM Conference on Human Factors in Computing Systems (CHI)*, 2023. DOI: 10.1145/3544548.3581405

C.3 Emily Kuang, Xiaofu Jin, Mingming Fan. **"Merging Results Is No Easy Task": An International Survey Study of Collaborative Data Analysis Practices Among UX Practitioners.** *Proc. ACM Conference on Human Factors in Computing Systems (CHI)*, 2022. DOI: 10.1145/3491102.3517647

C.2 Xiaofu Jin, Emily Kuang, Mingming Fan. **"Too old to bank digitally?": A Survey of Banking Practices and Challenges Among Older Adults in China.** *Proc. ACM Conference on Designing Interactive Systems (DIS)*, 2021. DOI: 10.1145/3461778.3462127

C.1 Ameneh Boroomand, Mohammad Javad Sahfiee, Linda Wang, Emily Kuang, Farnoud Kazemzadeh, Alexander Wong. **Compensated lens-free light field spectroscopy.** *Proc. International Conference on Inverse Problems in Engineering (ICIPE)*, 2017.

PEER-REVIEWED JOURNAL PUBLICATIONS

J.3 Ehsan Jahangirzadeh Soure*, Emily Kuang*, Mingming Fan, Jian Zhao. **CoUX: Collaborative Visual Analysis of Think-Aloud Usability Test Videos for Digital Interfaces.** *IEEE Transactions on Visualizations and Computer Graphics (TVCG), (Proc. of IEEE VIS)*, 2021. DOI: 10.1109/TVCG.2021.3114822 (* denotes equal contribution)

J.2 Emily Kuang, Farnoud Kazemzadeh, Alexander Wong. **Enhanced Smartphone Spectroscopy via High-throughput Computational Slit.** *Journal of Computational Vision and Imaging Systems*, vol. 2, no. 1, 2016. DOI: 10.15353/vsnl.v2i1.97

J.1 Farnoud Kazemzadeh, Emily Kuang, Alexander Wong. **Compact, Field-Portable Lens-free Microscope using Superresolution Spatio-Spectral Light-field Fusion.** *Journal of Computational Vision and Imaging Systems*, vol. 2, no. 1, 2016. DOI: 10.15353/vsnl.v2i1.105

PEER-REVIEWED EXTENDED ABSTRACTS & WORKSHOP PAPERS

W.2 Emily Kuang. **Crafting Human-AI Collaborative Analysis for User Experience Evaluation.** *In Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (CHI EA '23)*. DOI: 10.1145/3544549.3577042 *(In Press)*

W.1 Fahd Husain, Rosa Romero-Gómez, Emily Kuang, Dario Segura, Adamo Carolli, Lai Chung Liu, Manfred Cheung, Yohann Paris. **A Multi-scale Visual Analytics Approach for Exploring Biomedical Knowledge.** *Proc. Workshop on Visual Analytics in Healthcare (VAHC)*, IEEE VIS, 2021. arXiv:2109.06828 **[🏆Best Paper Winner]**

INVITED TALKS & POSTERS

- Invited speaker for Youth Professional Career Development Series 10/2023
- Invited speaker for RIT Computing and Information Sciences PhD Colloquium 09/2023
- Guest lecture in ISTE266: Design For Accessibility 04/2023
- Poster presentation at RIT Artificial Intelligence Summit 10/2022
- Poster presentation at CRA-WP Grad Cohort for Women 04/2022
- Guest lecture in ISTE782: Visual Analytics 11/2021

AWARDS AND HONORS

Google Ph.D. Fellowship in Human-Computer Interaction ~ Google 2023

AWARE-AI NRT Seed Funding Award ($1000 USD) ~RIT 2022

Department Nomination for Microsoft Research Ph.D. Fellowship ~ RIT 2022

Merit-based Ph.D. Scholarship ~ RIT 2020

Experience Award ~ Natural Sciences and Engineering Research Council of Canada (NSERC) 2018

President's Research Award ~ University of Waterloo 2018

President's Research Award ~ University of Waterloo 2017

Undergraduate Student Research Award ~ NSERC 2016

President's Scholarship of Distinction ~ University of Waterloo 2015

PROFESSIONAL SERVICE

Associate Chair

- **Chinese CHI** 2023 — Full papers

Paper Reviewer

- **ACM CHI** 2022, 2023, 2024 — Full papers (*Outstanding review recognition*)
- **ACM CSCW** 2023 — Full papers
- **Frontiers in Computer Science** 2023 — Sec. Human-Media Interaction
- **Chinese CHI** 2021 — Late Breaking Work

Student Volunteer

- **ACM CHI** 2022 — New Orleans, LA, USA
- **IEEE VIS** 2021 — Remote

Council Representative (2022-2023) — AWARE-AI NSF Research Traineeship

Project Judge (2022) — GENIUS Olympiad

ADDITIONAL PROFESSIONAL EXPERIENCE

North Inc. (now acquired by Google) Apr 2018 - Aug 2018

Computer Vision Developer

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

Synaptive Medical Inc. Sept 2017- Dec 2017

Optics Engineering Intern

- Investigated the stabilization of stereoscopic videos for a neurosurgical robot

St. Michael's Hospital Jan 2017 - Apr 2017

Medical Imaging Research Assistant

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