EMILY KUANG

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https://emilykuang.github.io/

RESEARCH AREAS

Human-Computer Interaction; AI for User Experience (UX); Human-AI Collaboration; Aging and Accessibility

EDUCATION

PhD in Computing and Information Sciences Aug 2020 - present

Rochester Institute of Technology, New York State, United States

Advised by Dr. Kristen Shinohara and Dr. Mingming Fan

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

RESEARCH EXPERIENCE

RIT, Center for Accessibility and Inclusion Research (CAIR) Aug 2020 - present

Graduate Research Assistant

- Conducted an international survey with 279 respondents to explore collaboration practices
- Co-developed a visual analytics tool for collaborative analysis of usability test sessions and conducted exploratory study with 6 pairs of participants to demonstrate usefulness of tool

Uncharted Software Inc., ASKE-E Team May 2021 - Aug 2021

Research Intern

- Worked on the DARPA Automating Scientific Knowledge Extraction (ASKE) program
- Designed and developed the human-machine interface (HMI) of an integrated system for scalable graph analysis and knowledge discovery

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

Research Engineer

- Designed and conducted user experiments to explore novel interaction techniques on large screens using mid-air gesture input
- Developed Android app and Python demos for the Huawei Developer Conference 2019

University of Waterloo, Vision and Image Processing (VIP) Lab May 2016 - Apr 2018
Undergraduate Research Assistant

- Designed and 3D-printed a lens-free microscope and a smartphone spectrometer
- Conducted testing with biological specimen to achieve optical resolution in nanometer range

PEER-REVIEWED JOURNAL PUBLICATIONS

[3] Ehsan Jahangirzadeh*, **Emily Kuang***, Mingming Fan, and Jian Zhao. CoUX: Collaborative Visual Analysis of Think-Aloud Usability Test Videos for Digital Interfaces. *IEEE Transactions on Visualizations and Computer Graphics (TVCG)*, 2021. (*equal contribution. To be presented at VIS 2021)

[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.

[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.

PEER-REVIEWED CONFERENCE PUBLICATIONS

[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.

[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 WORKSHOP PUBLICATIONS

[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)*, 2021.

AWARDS AND HONORS

Nomination for University of Waterloo Co-op Student of the Year	2019
Natural Sciences and Engineering Research Council of Canada (NSERC) Experience Award	2018
President's Research Award	2018
President's Research Award	2017
NSERC Undergraduate Student Research Award	2016
President's Scholarship of Distinction	2015

INDUSTRY EXPERIENCE

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

Computer Vision Developer

- Designed algorithm to quantify image sharpness and created a GUI to output real-time metrics; reduced time needed for assembling multi-camera system used to fit smart glasses
- Conducted field studies with beta testers during sizing procedure; led to process improvements

Synaptive Medical Inc. Sept 2017- Dec 2017

Optics Engineering Intern

- Designed and led an investigation into the stabilization of stereoscopic videos for a neurosurgical robot; results led to reduced complexity of the FPGA architecture
- Collected feedback from surgeons to optimize visualization presets during mock surgeries

St. Michael's Hospital Jan 2017 - Apr 2017

Medical Imaging Research Assistant

- Created a video processing pipeline for non-invasive detection of diabetic foot ulcers
- Assisted with patient interviews to determine user requirements for the in-home prototype

PROFESSIONAL SERVICE

Program Committee

- Reviewer for Late Breaking Work at **Chinese CHI** 2021

Student Volunteer

- IEEE Visualization Conference (**VIS**) 2021

SKILLS

Programming: Python • C/C++ • Java • MATLAB • JavaScript • HTML/CSS

Platforms & Toolkits: Tensorflow • OpenCV • Pandas • Scikit-learn • Matplotlib • D3.js • Tableau

Design: Visualization design • Interface Design • Interaction Design • Figma

Qualitative Research: Human-Centered Design • Interview • Survey • Qualitative Coding • Storyboarding • Thematic Analysis

Quantitative Research: Usability Testing • Experiment Design • Statistical Analysis • R • JMP