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I am a mixed methods HCI researcher who designs, implements, and evaluates novel interactions for end-users, learners, and professional programmers and data analysts

## Skills

### Programming

- Python
- JavaScript (React)
- Java
- R
- SQL

### User Research and Design

- Figma (interaction design)
- Qualitative research (thematic analysis, interviews, content analysis, surveys, comparative tool studies, design probes)
- Quantitative analysis (Python and R)

## Experience

### Microsoft Research, Cambridge UK - *Researcher*

July 2022 - PRESENT

- I study how AI can help users critically think and have greater control over AI-generated explanations during data analysis and programming tasks through HCI research of end-user programming and data analysis workflows.
- Designed and implemented a React JS prototype which allows users to interact with GPT-4 to dynamically generate UI elements that helps users have greater control of LLM responses and explanations by performing prompt engineering for the user based on their needs.
- Led UX research (n=24) of a novel prototype that leverages LLMs to assist user critical thinking during data-driven-decision-making by generating 'provocations' (AI-generated critiques of AI-generated content) to help users think more broadly about data-driven sensemaking.
- Authored/co-authored 12 publications and three patents involving data analysis, end-user programming, and AI, including a new formula debugger in Excel (available in [Excel Labs](#)).
- Transfer research insights to product groups and leadership at Excel, VSCode Copilot, and Microsoft v-teams (Appropriate reliance of AI group, Copilot coherence group).

### Autodesk Research, Remote US - *User Interface Research Intern*

January 2021 - April 2021

- Investigated barriers to providing expert (human) help to questions about feature-rich software like Autodesk Fusion 360.
- Designed, implemented, and deployed a custom survey prototype to collect feedback from experts (n=28). Paper in submission.

### Microsoft, Redmond WA - *Research Intern*

July 2018 - December 2018

- As part of the [PROSE team](#), designed, implemented, and evaluated a prototype for generating readable Python code within Jupyter notebooks using JavaScript and Python through program synthesis.
- With Wrex, data scientists are significantly more effective and efficient at data wrangling. Participants found Wrex reduced barriers in having to recall or look up data transform functions.
- Published the results from the evaluation as Wrex [1], which won Best Paper at CHI2020.

**UCSD - The Design Lab**, La Jolla CA - *PhD Researcher*

September 2017 - June 2022

- Performed HCI research on user-centered learning and doing data science.
- Published six papers and won two paper awards.
- Instructor of record for HCI Portfolio Design Studio, teaching assistant for Interaction Design, HCI Programming Studio, and Data-Driven UX/Product Design.

**Verizon**, Alpharetta GA - *Member Technical Staff I & II, Systems Engineering*

May 2011 - July 2015

- Full-stack software engineer for internal systems that managed enterprise accounts, contracts, and purchase orders.
- Developed systems in Java, JavaScript, HTML, and PL/SQL.
- Modernized existing systems through rewrites into new frameworks.
- Debugged and resolved critical issues reported by users, including stabilizing systems during major product rollout.
- Experience of working in the complete software development life cycle involving development, documentation, testing and maintenance.

## Education

**University of California San Diego**, La Jolla CA

2017 - 2022

*PhD Cognitive Science*

*Thesis:* [Synthesizing Transparent and Inspectable Technical Workflows](#)

HCI research on better interactions for learning and doing data science (6 publications, 2 awards).

**North Carolina State University**, Raleigh NC

2015 - 2017

*MS Computer Science*

*Thesis:* [HappyFace: Identifying and Predicting Frustrating Learning Obstacles at Scale](#)

HCI research on detecting frustrating programming learning obstacles (1 publication).

**Southern Polytechnic State University\***, Marietta GA

2007 - 2011

*BS Computer Science*

*\*Now Kennesaw State University*

## Selected publications and awards

[1] Wrex: A Unified Programming-By-Example Interaction for Synthesizing Readable Code for Data Scientists. (CHI 2020). **\*Best Paper Award\***

[2] FxD: a functional debugger for dysfunctional spreadsheets. (VL/HCC 2023). (Patent filed).

**\*Best Paper Honorable Mention Award\***

[3] "It's like a rubber duck that talks back": Understanding Generative AI-Assisted Data Analysis Workflows through a Participatory Prompting Study. (CHIWORK 2024).

[4] Led Dynamic Prompt Middleware hackathon based on research submitted to IUI 2025 - 2nd place / 1,064 projects 'Everyday AI' Executive Challenge, 1st place Hack for differentiated experiences on Copilot+ PCs Topic Challenge

See my [personal site](#) for a full CV of publications, projects, and awards.