

## Ian Drosos

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	Researcher Microsoft Research Cognitive Science Ph.D.	Updated: October 5, 2024 <a href="https://linkedin.com/in/ian-drosos/">linkedin.com/in/ian-drosos/</a> <a href="https://iandrosos.me">iandrosos.me</a>
RESEARCH INTERESTS	human-computer interaction; designing and implementing tools to support and enhance the workflows of content creators, developers, data scientists, and learners.	
EDUCATION	<b>University of California, San Diego</b> Ph.D. in Cognitive Science Thesis: <i>Synthesizing Transparent and Inspectable Technical Workflows</i> , Advisor: Philip Guo	2017 – 2022
	<b>North Carolina State University</b> M.S. in Computer Science Thesis: <i>HappyFace: Identifying and Predicting Frustrating Learning Obstacles at Scale</i> , Advisor: Chris Parnin	2015 – 2017
	<b>Southern Polytechnic State University</b> B.S. in Computer Science	2007 – 2011
EXPERIENCE	<b>Microsoft Research, Cambridge, UK</b> <i>Researcher</i> HCI research in bringing intelligence to end-user programming and data workflows. Partnered with product teams at Excel to provide design and UX insights as part of transferring research findings to product managers and designers. [C.8-12; C.X2-X6; W.1-2]	2022 –
	<b>UCSD – The Design Lab, La Jolla, CA</b> <i>Researcher – Ph.D. Candidate</i> HCI research in providing better experiences for developers, data scientists, learners, and content creators. [C.2-7]	2017 – 2022
	<b>UCSD, La Jolla, CA</b> <i>Instructor</i> - HCI Portfolio Design Studio (COGS121)	2018 – 2022
	<i>Teaching Assistant</i> - Interaction Design (COGS120/CSE170) - Human-Computer Interaction Programming Studio (COGS121) - HCI Portfolio Design Studio (COGS121) - Data-Driven UX/Product Design (COGS127)	
	<b>Autodesk, San Rafael, CA</b> <i>Intern – User Interface Research</i> Researching, prototyping, and studying software learning with the HCI and Visualization team at Autodesk Research [C.X1].	01/2021 – 04/2021
	<b>Microsoft, Redmond, WA</b> <i>Research Intern – Program Synthesis</i> Researching, prototyping, and studying program synthesis interactions for data scientists on the PROSE team (microsoft.github.io/prose). [C.4]	07/2018 – 12/2018

## Verizon, Alpharetta, GA

Member Technical Staff I & II – Systems Engineering

2011 – 2015

Full-stack software engineer developing enterprise systems using Java, PL/SQL, JavaScript, and HTML.

## PUBLICATIONS

(C)onference, (J)ournal, and (W)orkshop.

C.12 Majeed Kazemitabaar, Jack Williams, Ian Drosos, Tovi Grossman, Austin Henley, Carina Negreanu, and Advait Sarkar. 2024. Improving Steering and Verification in AI-Assisted Data Analysis with Interactive Task Decomposition. In Proceedings of The ACM Symposium on User Interface Software and Technology (UIST 2024). [\[Link\]](#)

C.11 Advait Sarkar, Xiaotong (Tone) Xu, Neil Toronto, Ian Drosos, and Christian Poelitz. 2024. When Copilot Becomes Autopilot: Generative AI’s Critical Risk to Knowledge Work and a Critical Solution. The European Spreadsheet Risks Interest Group Conference (EuSpRIG 2024). [\[Link\]](#)

C.10 Ian Drosos, Advait Sarkar, Xiaotong (Tone) Xu, Carina Negreanu, Sean Rintel, and Lev Tankelevitch. 2024. “It’s like a rubber duck that talks back”: Understanding Generative AI-Assisted Data Analysis Workflows through a Participatory Prompting Study. In Proceedings of the Symposium on Human-Computer Interaction for Work. (CHIWORK 2024). [\[Link\]](#)

W.2 Andrew D. Gordon, Carina Negreanu, José Cambronero, Rasika Mudumbai Chakravarthy, Ian Drosos, Hao Fang, Bhaskar Mitra, Hannah Richardson, Advait Sarkar, Stephanie Simmons, Jack Williams, Ben Zorn. 2024. Co-audit: tools to help humans double-check AI-generated content. In the Workshop on Evaluation and Usability of Programming Languages and Tools (PLATEAU 2024). [\[Link\]](#)

W.1 Advait Sarkar, Ian Drosos, Rob DeLine, Andrew D. Gordon, Carina Negreanu, Sean Rintel, Jack Williams, and Ben Zorn. 2023. Participatory prompting: a user-centric research method for eliciting AI assistance opportunities in knowledge workflows. In the Workshop of the Psychology of Programming Interest Group (PPIG 2023). [\[Link\]](#)

C.9 Ian Drosos, Nick Wilson, Andrew D. Gordon, Sruti Ragavan, and Jack Williams. 2023. FxD: a functional debugger for dysfunctional spreadsheets. In Proceedings of the Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2023). (Patent filed). [\[Link\]](#). *FxD is now released as part of [Excel Labs!](#)*

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

C.8 Kasra Ferdowsi, Jack Williams, Ian Drosos, Andrew D. Gordon, Carina Negreanu, Advait Sarkar, Benjamin Zorn. 2023. ColDeco: An End User Spreadsheet Inspection Tool for AI-Generated Code. In Proceedings of the Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2023). (Patent filed). [\[Link\]](#)

C.7 Ian Drosos and Philip Guo. 2022. The Design Space of Livestreaming Equipment Setups: Tradeoffs, Challenges, and Opportunities. In Proceedings of the ACM Designing Interactive Systems Conference (DIS 2022). [\[Link\]](#)

- C.6 Ian Drosos and Philip Guo. 2021. Streamers Teaching Programming, Art, and Gaming: Cognitive Apprenticeship, Serendipitous Teachable Moments, and Tacit Expert Knowledge. In Proceedings of the Symposium on Visual Languages and Human-Centric Computing, short paper (VL/HCC 2021). [\[Link\]](#)  
**\*Best Short Paper, Honorable Mention Award\***
- C.5 Sam Lau, Ian Drosos, Julia Markel and Philip Guo. 2020. The Design Space of Computational Notebooks: An Analysis of 60 Systems in Academia and Industry. In Proceedings of the Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2020). [\[Link\]](#)
- C.4 Ian Drosos, Titus Barik, Philip Guo, Robert DeLine, and Sumit Gulwani. 2020. Wrex: A Unified Programming-By-Example Interaction for Synthesizing Readable Code for Data Scientists. In Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI 2020). [\[Link\]](#)  
**\*Best Paper Award\***
- C.3 Adam Rule, Ian Drosos, Aurélien Tabard, and James D. Hollan. 2018. Aiding Collaborative Reuse of Computational Notebooks with Annotated Cell Folding. In Proceedings of the ACM on Human-Computer Interaction (CSCW 2018). [\[Link\]](#)
- C.2 René Just, Chris Parnin, Ian Drosos, and Michael D. Ernst. 2018. Comparing developer-provided to user-provided tests for fault localization and automated program repair. In Proceedings of the ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA 2018). [\[Link\]](#)
- C.1 Ian Drosos, Philip Guo, and Chris Parnin. 2017. HappyFace: Identifying and Predicting Frustrating Obstacles for Learning Programming at Scale. In Proceedings of the Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2017). [\[Link\]](#)
- IN PREP OR  
SUBMISSION
- C.X6 Ian Drosos, Advait Sarkar, Jack Williams, and Nicholas Wilson. 2025. Dynamic Prompt Middleware: Contextual Prompt Refinement Controls for Comprehension Task. (Patent filed).
- C.X5 Ian Drosos, Advait Sarkar, Xiaotong (Tone) Xu, and Neil Toronto. 2025. “It makes you think”: Provocations Restore Critical Thinking During AI-Assisted Tasks.
- C.X4 Hao-Ping (Hank) Lee, Advait Sarkar, Lev Tankelevitch, Ian Drosos, Sean Rintel, Richard Banks, and Nicholas Wilson. 2025. The Impact of Generative AI on Critical Thinking: Self-Reported Reductions in Cognitive Effort and Confidence Effects From a Survey of Knowledge Workers.
- C.X3 Bhuvanashree Murugadoss, Christian Poelitz, Ian Drosos, Vu Le, Nick McKenna, Carina Negreanu, Chris Parnin, and Advait Sarkar. 2024. Evaluating the Evaluator: Measuring LLMs’ Adherence to Task Evaluation Instructions (In review). [\[Link\]](#)
- C.X2 Ian Drosos, Advait Sarkar, and Andrew D. Gordon. 2023. “My toxic trait is thinking I’ll remember this”: Gaps in the learner experience of video tutorials for feature-rich software. (In review). [\[Link\]](#)

C.X1 Ian Drosos, Jo Vermeulen, George Fitzmaurice, Justin Matejka. 2024.  
Nanomentoring: Investigating How Quickly People Can Help People Learn  
Feature-Rich Software. (In review).

TOOLS                      Figma, Jupyter Notebook, RStudio, DaVinci Resolve

PROGRAMMING  
LANGUAGES                Python, JavaScript, Java, R, L<sup>A</sup>T<sub>E</sub>X

SERVICE                      *Program Committee*  
Intelligent User Interfaces 2025  
Learning @ Scale 2023-2024  
VL/HCC 2023-2024

*Reviewer*  
CHI 2022-2025  
VL/HCC 2021  
UIST 2020

INVITED TALKS              *LLM Forum - Understanding Generative AI-Assisted Data Analysis Workflows*  
European Bioinformatics Institute, September 2024

*Learning programming in the era of LLMs*  
Google, January 2024

MENTORSHIP                Hank Lee, *Microsoft Research intern*, Summer 2024  
Bhuvanashree Murugadoss, *Microsoft Research Fellow*, 2023-2024  
Xiaotong (Tone) Xu, *Microsoft Research intern*, Summer 2023  
Majeed Kazemitabaar, *Microsoft Research intern*, Summer 2023  
Kasra Ferdowsi, *Microsoft Research intern*, Summer 2022