

Ian Drosos

HCI Researcher
Microsoft Research
Cognitive Science Ph.D.

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RESEARCH INTERESTS human-computer interaction; designing and implementing tools to support and enhance the workflows of developers, data scientists, learners, and content creators.

EDUCATION

University of California, San Diego
Ph.D. in Cognitive Science 2017 – 2022
Thesis: *Synthesizing Transparent and Inspectable Technical Workflows*, Advisor: Philip Guo

North Carolina State University
M.S. in Computer Science 2015 – 2017
Thesis: *HappyFace: Identifying and Predicting Frustrating Learning Obstacles at Scale*, Advisor: Chris Parnin

Southern Polytechnic State University
B.S. in Computer Science 2007 – 2011

EXPERIENCE

Microsoft Research, Cambridge, UK
Researcher 2022 –
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, 9; X.2, 3; J.X; W.1]

UCSD – The Design Lab, La Jolla, CA
Researcher – Ph.D. Candidate 2017 – 2022
HCI research in providing better experiences for developers, data scientists, learners, and content creators. [C.2-7]

UCSD, La Jolla, CA
Instructor 2018 – 2022
HCI Portfolio Design Studio (COGS121)
• Quarter: Spring 2022

Teaching Assistant
Interaction Design (COGS120/CSE170)
• Quarters: Winter 2018, 2019
• Instructor: Scott Klemmer
Human-Computer Interaction Programming Studio (COGS121)
• Spring 2018, 2019
• Instructor: Philip Guo
HCI Portfolio Design Studio (COGS121)
• Quarters: Spring 2020, 2021
• Instructor: Philip Guo
Data-Driven UX/Product Design (COGS127)
• Quarter: Winter 2022
• Instructor: Sean Kross

Autodesk, San Rafael, CA*Intern – User Interface Research*

01/2021 – 04/2021

Researching, prototyping, and studying software learning with the HCI and Visualization team at Autodesk Research [C.X1].

Microsoft, Redmond, WA*Research Intern – Program Synthesis*

07/2018 – 12/2018

Researching, prototyping, and studying program synthesis interactions for data scientists on the PROSE team (microsoft.github.io/prose). [C.4]

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.X3 Decomposing LLM plan and code steps to steer data analysis (In prep).

C.X2 LLMs for critical thinking and decision-making (In prep).

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).

J.X **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).

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. Proceedings of the 34th Annual Conference of the Psychology of Programming Interest Group (PPIG 2023).

C.9 **Ian Drosos**, Nick Wilson, Sruti Ragavan, Jack Williams, and Andrew D. Gordon. 2023. FxD: a functional debugger for dysfunctional spreadsheets. In Proceedings of the Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2023). (Patent filing in progress).

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 filing in progress).

C.7 **Ian Drosos** and Philip Guo. 2022. The Design Space of Livestreaming Equipment Setups: Tradeoffs, Challenges, and Opportunities. In Designing Interactive Systems Conference 2022 (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). [\[Link\]](#)
Honorable Mention Paper 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 2020 CHI Conference on Human Factors in Computing Systems (CHI 2020). [\[Link\]](#)
Best Paper Award (Top 1%)
- 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 Conference on Computer-Supported Cooperative Work and Social Computing. ACM, Article 150 (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 27th 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). [\[Link\]](#)

TOOLS	Figma, Jupyter Notebook, RStudio, DaVinci Resolve
PROGRAMMING LANGUAGES	Python, JavaScript, HTML, Java, R, L ^A T _E X
SERVICE	<i>Program Committee</i> , L@S 2023, VL/HCC 2023 <i>Reviewer</i> , UIST 2020, VL/HCC 2021, CHI 2022, CHI 2023