Ian Drosos

HCI Researcher
Microsoft Research
Cognitive Science Ph.D.

Updated: October 9, 2023
linkedin.com/in/ian-drosos/
iandrosos.me

Research Interests

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

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

In prep (names not final):

- C.X5 The design space of AI explanations (or AI explanations that teach).
- C.X4 Generative AI for data-driven-decision-making.
- C.X3 Decomposing LLM plan and code steps to steer data analysis.
- C.X2 LLMs for critical thinking and decision-making.

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

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]
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 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]
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 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, LaTeX

Service

Program Committee, L@S 2023-2024, VL/HCC 2023-2024
Reviewer, UIST 2020, VL/HCC 2021, CHI 2022-2024