

# Sam Lau

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Assistant Teaching Professor  
Halıcıoğlu Data Science Institute  
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Updated: November 19, 2024  
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RESEARCH INTERESTS     Human-computer interaction, end-user programming, data science education, computer science education

EDUCATION     **University of California, San Diego**

Ph.D. Cognitive Science     2018 – 2023  
Advisor: Philip Guo

**University of California, Berkeley**

M.S. Computer Science     2017 – 2018  
Advisor: Joshua Hug

B.S. Electrical Engineering and Computer Science     2013 – 2017

AWARDS AND HONORS     UCSD Cognitive Science Teaching Excellence Award     2019

UC Berkeley EECS Distinguished Graduate Student Instructor Award     2018

BOOKS AND MONOGRAPHS     **Textbooks**

[B.1] Sam Lau, Joseph Gonzalez, Deborah Nolan. Learning Data Science. O'Reilly Media, Inc., 2023.

PEER-REVIEWED PUBLICATIONS     **Conference Papers**

[C.7] Christopher Lum\*, Guoxuan Xu\*, Sam Lau (\*equal contribution). “I’m not sure, but...”: Expert Practices that Enable Effective Code Comprehension in Data Science. ACM Technical Symposium on Computer Science Education (SIGCSE), 2025.

[C.6] Ylesia Wu\*, Qirui Zheng\*, Sam Lau (\*equal contribution). How Novices Use Program Visualizations to Understand Code that Manipulates Data Tables. ACM Technical Symposium on Computer Science Education (SIGCSE), 2025.

[C.5] Sam Lau, Philip J. Guo. From “Ban It Till We Understand It” to “Resistance is Futile”: How University Programming Instructors Plan to Adapt as More Students Use AI Code Generation and Explanation Tools such as ChatGPT and GitHub Copilot. ACM Conference on International Computing Education Research (ICER), 2023.

- [C.4] Sam Lau, Justin Eldridge, Shannon Ellis, Aaron Fraenkel, Marina Langlois, Suraj Rampure, Janine Tiefenbruck, Philip J. Guo. The Challenges of Evolving Technical Courses at Scale: Four Case Studies of Updating Large Data Science Courses. ACM Conference on Learning @ Scale (L@S), 2022.
- [C.3] Sam Lau, Deborah Nolan, Joseph Gonzalez, Philip J. Guo. How Computer Science and Statistics Instructors Approach Data Science Pedagogy Differently: Three Case Studies. ACM Technical Symposium on Computer Science Education (SIGCSE), 2022.
- [C.2] Sam Lau, Sruti Srinivasa Ragavan, Ken Milne, Titus Barik, Advait Sarkar. TweakIt: Supporting End-User Programmers Who Transmogrify Code. ACM Conference on Human Factors in Computing Systems (CHI), 2021.
- [C.1] Sam Lau, Ian Drosos, Julia M. Markel, Philip J. Guo. The Design Space of Computational Notebooks: An Analysis of 60 Systems in Academia and Industry. IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), 2020.

### Workshop and Poster Papers

- [W.5] Sam Lau<sup>\*</sup>, Sean Kross<sup>\*</sup>, Eugene Wu, Philip J. Guo (<sup>\*</sup>equal contribution). Teaching Data Science by Visualizing Data Table Transformations: Pandas Tutor for Python, Tidy Data Tutor for R, and SQL Tutor. International Workshop on Data Systems Education (DataEd), 2023.
- [W.4] Sam Lau, Philip J. Guo. CodeHound: Helping Instructors Track Pedagogical Code Dependencies in Course Materials. ACM SIGPLAN International Symposium on SPLASH-E (SPLASH-E), 2022.
- [W.3] Sam Lau, Philip J. Guo. Data Theater: A Live Programming Environment for Prototyping Data-Driven Explorable Explanations. Workshop on Live Programming (LIVE), 2020
- [W.2] Samuel Lau, Tricia J. Ngoon, Vineet Pandey, Scott Klemmer. Experiment Reconstruction Reduces Fixation on Surface Details of Explanations. Poster in Proceedings of C&C 2019: ACM SIGCHI Conference on Creativity and Cognition, 2019
- [W.1] Vinitra Swamy, Allen Guo, Samuel Lau, Wilton Wu, Madeline Wu, Zachary Pardos, David Culler. Deep Knowledge Tracing for Free-Form Student Code Progression. Poster in Proceedings of AIED 2018: *International Conference on Artificial Intelligence in Education*, June 2018

### Journal Articles

- [J.1] Shou-Tian Zheng, Xiang Zhao, Samuel Lau, Addis Fuhr, Pingyun Feng, Xianhui Bu. Entrapment of metal clusters in metal-organic framework channels by extended hooks anchored at open metal sites. In *JACS: Journal of the American Chemical Society*, 2013.

TEACHING EXPERIENCE	<b>Instructor</b>	
	UCSD DSC 80: Practice and Application of Data Science	Fall 2023, Spring 2024
	UCSD DSC 106: Introduction to Data Visualization	Winter 2024
	UCSD DSC 10: Principles of Data Science	Summer 2022
	UCB Data 100: Principles and Techniques of Data Science Teaching rated 6.2 / 7.0 (dept avg 5.8), 92% response rate	Summer 2019
	UCB Data 8: Foundations of Data Science Teaching rated 6.3 / 7.0 (dept avg 5.8), 84% response rate	Summer 2017
	<b>Graduate Teaching Assistant</b>	
	UCSD COGS 18: Introduction to Python	Winter 2022
	UCSD COGS 124: HCI Technical Systems Research	Fall 2020
	UCSD COGS 108: Data Science in Practice	Fall 2019, Winter 2019, Winter 2020
	UCSD COGS 10: Cognitive Consequences of Technology	Spring 2019
	Berkeley Data 100: Principles and Techniques of Data Science	Spring 2017, Fall 2017
	Berkeley Data 8: Foundations of Data Science	Fall 2016, Spring 2016, Fall 2015
	Berkeley CS 169: Software Engineering	Spring 2015
Berkeley CS 61AS: Structure and Interpretation of Computer Programs	Spring 2014, Fall 2014	
OTHER EMPLOYMENT AND PROJECTS	<b>Microsoft Research</b> , Cambridge, United Kingdom Research Intern, Future of Work Lab, Host: Advait Sarkar	06/2020 - 08/2020
	<b>Counsyl</b> , San Francisco, CA Software Engineering Intern – designed and implemented ap- pointment scheduling web application.	05/2016 - 08/2016
	<b>Khan Academy</b> , Mountain View, CA Software Engineering Intern – deployed article authoring system for interactive content. As of 2020, used for over 95% of articles on Khan Academy.	05/2015 - 08/2015

**Berkeley Public Schools Fund**, Berkeley, CA  
Software Engineering Intern – built crowdfunding system used  
to raise over \$66,000 for 20 Berkeley public schools.

08/2013 - 06/2014