

## Sam Lau

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PhD Student  
Department of Cognitive Science  
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Updated: March 15, 2021  
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<https://samlau.me>

### RESEARCH INTERESTS

Human-computer interaction, end-user programming, data science education, statistics education

### EDUCATION

#### University of California, San Diego

Ph.D. Cognitive Science  
Advisor: Philip Guo

2018 – Present

#### University of California, Berkeley

M.S. Computer Science  
Advisor: Joshua Hug  
GPA: 3.93

2017 – 2018

B.S. Electrical Engineering and Computer Science  
GPA: 3.96

2013 – 2017

### BOOKS AND MONOGRAPHS

#### Textbooks

[B.1] Samuel Lau, Joseph Gonzalez, Deborah Nolan. Principles and Techniques of Data Science, 2018. [www.textbook.ds100.org](http://www.textbook.ds100.org).

*Used in required course for Data Science major and minor, serving 2,000 Berkeley students annually with an additional 30,000 readers from 145 countries.*

### PEER-REVIEWED PUBLICATIONS

#### Conference Papers

[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.

*Placing live previews of code outputs directly in spreadsheets enables data analysts to tweak and reuse Python examples without needing Python expertise.*

[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.

*Computational notebooks vary widely in data import, code editing, code execution, and output format.*

#### Workshop and Poster Papers

- [P.3] Sam Lau, Philip Guo. Data Theater: A Live Programming Environment for Prototyping Data-Driven Explorable Explanations. Workshop on Live Programming (LIVE), 2020

*Separating logic from presentation simplifies the process of creating explorable explanations.*

- [P.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

*Asking people to mentally replicate an experiment briefly reduces the allure of scientific terminology.*

- [P.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

*Deep learning models trained on free-form student code predict learning pace.*

#### 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.

#### AWARDS AND HONORS

UCSD Cognitive Science Teaching Excellence Award	2019
UC Berkeley EECS Distinguished Graduate Student Instructor Award	2018

#### TEACHING EXPERIENCE

##### Instructor

UCB Data 100: Principles and Techniques of Data Science Summer 2019  
Teaching rated 6.2 / 7.0 (dept avg 5.8), 92% response rate  
*First UCB summer offering of Data 100*

UCB Data 8: Foundations of Data Science Summer 2017  
Teaching rated 6.3 / 7.0 (dept avg 5.8), 84% response rate  
*First UCB summer offering of Data 8*

##### Graduate Teaching Assistant

UCSD COGS 10: Cognitive Consequences of Technology	Spring 2019
UCSD COGS 108: Data Science in Practice	Fall 2019, Winter 2019
UCB Data 100: Principles and Techniques of Data Science	Spring 2017, Fall 2017
UCB Data 8: Foundations of Data Science	Fall 2016, Spring 2016, Fall 2015

	UCB CS 169: Software Engineering	Spring 2015
	UCB CS 61AS: Structure and Interpretation of Computer Programs	Spring 2014, Fall 2014
OTHER EMPLOYMENT AND PROJECTS	<b>Berkeley Institute of Data Science</b> , Berkeley, CA Student Research Engineer – designed distributed infrastructure for hosted computational notebooks. Architecture now used at multiple universities.	01/2017 - 06/2017
	<b>Counsyl</b> , San Francisco, CA Software Engineering Intern – designed and built appointment scheduling web application.	05/2016 - 08/2016
	<b>Khan Academy</b> , Mountain View, CA Software Engineering Intern – built article authoring system that non-programmers use to make interactive content. Now used for over 95% of articles on Khan Academy.	05/2015 - 08/2015
	<b>Berkeley Public Schools Fund</b> , Berkeley, CA Software Engineering Intern – built crowdfunding system that raised over \$66,000 for 20 Berkeley public schools.	08/2013 - 06/2014