

Sam Lau

PhD Student
Department of Cognitive Science
University of California, San Diego (UCSD)

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Email: 1au@ucsd.edu
<https://sam1au.me>

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

CURRENT RESEARCH PROJECTS Data Theater: real-time prototyping of data explanations. Can we combine the speed and flexibility of drawing with the dynamics of computer-based interactives? I am building a tool for authoring interactive, visual explanations for giving presentations.

EDUCATION **University of California, San Diego**
Ph.D. Cognitive Science 2018 – Present
Advisor: Philip Guo

University of California, Berkeley
M.S. Computer Science 2017 – 2018
Advisor: Joshua Hug
GPA: 3.93

B.S. Electrical Engineering and Computer Science 2013 – 2017
GPA: 3.96

PEER-REVIEWED PUBLICATIONS **Conference Papers**
[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.

Poster Papers and Works-in-Progress

- [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*, July 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.

BOOKS AND MONOGRAPHS

Textbooks

- [B.1] Samuel Lau, Joseph Gonzalez, Deborah Nolan. Principles and Techniques of Data Science, 2018. 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.

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

Berkeley Institute of Data Science, Berkeley, CA 01/2017 - 06/2017
Student Research Engineer – designed distributed infrastructure for hosted computational notebooks. Architecture now used at multiple universities.

Counsyl, San Francisco, CA 05/2016 - 08/2016
Software Engineering Intern – designed and built appointment scheduling web application.

Khan Academy, Mountain View, CA 05/2015 - 08/2015
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.

Berkeley Public Schools Fund, Berkeley, CA 08/2013 - 06/2014
Software Engineering Intern – built crowdfunding system that raised over \$66,000 for 20 Berkeley public schools.