Joshua S. Rule

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Research Interests

Computational cognitive science, conceptual development, mathematical development, probabilistic modeling, program induction, programming language theory, foundations of computation

Academic Positions

2020 – Present	University of California, Berkeley Postdoctoral Scholar *Advisors: Alison Gopnik, Steven T. Piantadosi*
2013 – 2020	Massachusetts Institute of Technology Graduate Student *Advisor: Joshua B. Tenenbaum*
2010 – 2013	Georgetown University Research Assistant & Lab Manager *Advisor: Maximilian Riesenhuber*
Summer 2009	University of Illinois, Urbana-Champaign Research Assistant *Advisor: Dan Roth*

Education

2020	Massachusetts Institute of Technology PhD, Brain & Cognitive Sciences, *Thesis Advisor: Joshua B. Tenenbaum*
2009	University of Illinois Urbana-Champaign BS, Computer Science, *Summa cum Laude* BA, Philosophy, *Magna cum Laude*

Awards & Honors

2016	Angus MacDonald Award for Excellence in Undergraduate Teaching, MIT
2015	Glushko Student Travel Award, Cognitive Science Society
2014	Graduate Research Fellowship, National Science Foundation Eugene Stark Graduate Fellowship, MIT
2013	Leventhal Graduate Fellowship, MIT
2010	University Honors, UIUC, *top 3% of graduating class*

Journal Articles

Rule, **J. S.**, & Riesenhuber, M. (2021). *Leveraging prior concept learning improves ability to generalize from few examples in computational models of human object recognition. Frontiers in Computational Neuroscience.*

Rule, **J. S.**, Piantadosi, S. T., & Tenenbaum, J. B. (2020). *The child as hacker. Trends in Cognitive Sciences.*

Glezer, L. S., Kim, J., **Rule**, **J.**, Jiang, X., & Riesenhuber, M. (2015). *Adding words to the brain's visual dictionary: Novel word learning selectively sharpens orthographic representations in the VWFA. Journal of Neuroscience*, *35*(12).

Conference Papers

Rule, **J.**, Schulz, E., Piantadosi, S. T., & Tenenbaum, J. B. (2018). *Learning list concepts through program induction. Proceedings of the Cognitive Science Society.*

Rule, **J.**, Dechter, E., & Tenenbaum, J. B. (2015). *Representing and learning a large system of number concepts with Latent Predicate Networks. Proceedings of the Cognitive Science Society.*

Sammons, M., Vydiswaran, V. G. V., Vieira, T., Johri, N., Chang, M.-W., Goldwasser, D., Srikumar, V., Kundu, G., Tu, Y., Small, K., **Rule**, **J.**, Do, Q., & Roth, D. (2009). *Relation alignment for textual entailment recognition. Proceedings of the Textual Alignment Conference.*

Abstracts & Posters

Rule, **J. S.**, Piantadosi, S. T., & Tenenbaum, J. B. (2019). *Learning a novel rule-based conceptual system. Proceedings of the Cognitive Science Society*
Poster and abstract.

Dechter, E., **Rule**, **J.**, & Tenenbaum, J. B. (2015). *Latent Predicate Networks: Concept learning with probabilistic context-sensitive grammars. Proceedings of the AAAI Spring Symposium Series*
Poster and abstract.

Dechter, E., **Rule**, **J.**, & Tenenbaum, J. B. (2014). *Unsupervised learning of probabilistic programs with latent predicate networks. Proceedings of the NIPS Workshop on Probabilistic Programming*
Poster and abstract.

Glezer, L. S., Kim, J. S., **Rule**, **J.**, Jiang, X., & Riesenhuber, M. (2013). *Novel word learning selectively sharpens orthographic representations in the VWFA. Neuroscience 2013 Abstracts*
Poster and abstract.

Dissertation

2020 — *The child as hacker: Building more human-like models of learning*
Committee: Susan Carey, Steven T. Piantadosi, Laura Schulz (chair), Joshua B. Tenenbaum

Invited Talks

Oct. 2020	*The child as hacker*, UC Berkeley, Institute for Human Development & Developmental Psychology Colloquium
July 2018	*Learning list concepts through program induction*, Cognitive Science Society, Learning as Program Induction Workshop
July 2015	*Representing and learning a large system of number concepts with Latent Predicate Networks*, Cognitive Science Society

Reviewing

CogSci, Trends in Cognitive Sciences

Mentoring

2020 – 2021	Shardul Chiplunkar (BS)
2018 – 2019	Nicholas Alvarado (BS), Software Engineering Intern, Uptycs
2017	Benjamin Kaplan (BS), Analytics, Gloss Genius

Teaching

Fall 2015	9.660 - Computational Cognitive Science Teaching Assistant with Joshua Tenenbaum, MIT
Fall 2014	9.660 - Computational Cognitive Science Teaching Assistant with Joshua Tenenbaum, MIT
Spring 2009	CS225 - Data Structures Teaching Assistant with Cinda Heeren, UIUC
Fall 2008	CS225 - Data Structures Teaching Assistant with Cinda Heeren, UIUC
Spring 2008	CS225 - Data Structures Teaching Assistant with Cinda Heeren, UIUC