

Robert D. Hawkins

CONTACT INFORMATION	Princeton University Peretsman Scully Hall Princeton, NJ 08544	<i>Phone:</i> (217)-549-6923 <i>Email:</i> rdhawkins@princeton.edu <i>Website:</i> http://rxdhawkins.com/
APPOINTMENTS	Postdoctoral Research Fellow, Princeton University, 2019 – Present	
EDUCATION	PhD, Psychology, Stanford University, 2019 BS, Cognitive Science and Mathematics, Indiana University, 2014	
FELLOWSHIPS & GRANTS	C. V. Starr Postdoctoral Research Fellowship, 2021-present NSF SBE Postdoctoral Research Fellowship, 2019-2021 E. K. Potter Stanford Graduate Fellowship, 2017-2019 NSF Graduate Research Fellowship, 2014-2017 Arthur R. Metz Scholarship, 2010-2014 Science, Technology, and Research (STARS) Scholarship, 2010-2014 Edward A. Knapp Undergraduate Fellowship, Santa Fe Institute, 2012 IU Hutton Honors College Research Partnership Grant, 2011	
AWARDS	Cognitive Science Society Prize for Computational Modeling in Language, 2020 Cognitive Science Society Glushko Student Travel Award, 2019 Best Paper Award, ICML Workshop on Adaptive and Multi-Task Learning, 2019 Cognitive Science Society Glushko Student Travel Award, 2016 Cognitive Science Society Prize for Computational Modeling in Applied Cognition, 2015 Phi Beta Kappa, 2013 Sigma Xi Outstanding Undergraduate Research Award, 2013 IU Mathematics Cora B. Hennel Memorial Award, 2013 IU Cognitive Science Program Award for Outstanding Achievement, 2013 IU Cognitive Science Program Award for Outstanding Contribution, 2012 Best Paper Award, Midwest Undergraduate Cognitive Science Conference, 2012	
JOURNAL PAPERS	Hawkins, R.D. , Sano, M., Goodman, N.D., Fan, J.E. (<i>submitted</i>). Pictorial meaning emerges from both visual resemblance and communicative context.	
* : JOINT FIRST	Barnett, S., Hawkins, R.D. , Griffiths, T. (<i>submitted</i>). A pragmatic account of the weak evidence effect.	
	Hawkins, R.D. , Berdahl, A., Pentland, A.S., Goodman, N.D., Tenenbaum, J.B., Krafft, P.M. (<i>under revision</i>). Emergent collective sensing in human groups.	
	Hawkins, R.D. , Goodman, N.D. (<i>under revision</i>). Why do you ask? The informational dynamics of relevance in questions and answers. <i>PsyArXiv: 10.31234</i> .	
	Murthy, S.*, Hawkins, R.D. * Griffiths, T. (<i>under review</i>). Shades of confusion: Lexical uncertainty modulates ad hoc coordination in an interactive communication task based on variable word-color associations. <i>arXiv:2105.06546</i>	
	Hawkins, R.D. , Franke, M., Frank, M.C., Smith, K., Griffiths, T.L., Goodman, N.D. (<i>under review</i>). From partners to populations: A hierarchical Bayesian account of coordination and convention. <i>arXiv:2104.05857</i> .	

- Hawkins, R.D.**, Gweon, H. Goodman, N.D. (2021). The division of labor in communication: Speakers help listeners account for asymmetries in visual perspective. *Cognitive Science*, 45 (3), e12926.
- Degen, J., **Hawkins, R.D.**, Kreiss, E., Graf, C., Goodman, N. (2020). When redundancy is useful: A Bayesian approach to ‘overinformative’ referring expressions. *Psychological Review* 127(4), 591–621.
- Fan, J., **Hawkins, R.D.**, Wu, M., Goodman, N. (2020). Pragmatic inference and visual abstraction enable contextual flexibility during visual communication. *Computational Brain and Behavior*, 3(1), 86–101.
- Hawkins, R.D.**, Frank, M.C., Goodman, N.D. (2020). Characterizing the dynamics of learning in repeated reference games. *Cognitive Science*, 44(6), e12845.
- Hawkins, R.D.**, Goodman, N., Goldstone, R. (2019). The emergence of social norms and conventions. *Trends in Cognitive Sciences*, 23 (2), 158–169.
- Hawkins, R.D.***, Smith, E.* , Au, C., Arias, J., Catapano, R., Hermann, E., Keil, M., Lampinen, A., Raposo, S., Reynolds, J., Salehi, S., Salloum, J., Tan, J., Frank, M. (2018). Improving the replicability of psychological science through pedagogy. *Advances in Methods and Practices in Psychological Science*, 1(1), 7–18.
- Monroe, W., **Hawkins, R.D.**, Goodman, N., Potts, C. (2017). Colors in context: A pragmatic neural model for grounded language understanding. *Transactions of the Association for Computational Linguistics*, 5, 325–338.
- Avena-Koenigsberger, A, Misic, B., **Hawkins, R.D.**, Griffa, A., Hagmann, P., Goñi, J., and Sporns, O. (2017). Path ensembles and a tradeoff between communication efficiency and resilience in the human connectome. *Brain Structure and Function*, 222(1), 603-618.
- Hawkins, R.D.**, Goldstone, R. L. (2016). The formation of social conventions in real-time environments. *PLoS ONE*, 11(3), e0151670.
- Hawkins, R.D.**, Houpt, J., Eidels, A., Townsend, J. (2016). Can two dots form a Gestalt? Measuring emergent features with the capacity coefficient. *Vision Research*, 126, 19–33.
- Silbert, N., **Hawkins, R.D.** (2016). A tutorial on general recognition theory. *Journal of Mathematical Psychology*, 73, 94-109.
- Hawkins, R.D.** (2015). Conducting real-time multiplayer experiments on the web. *Behavior Research Methods*, 47(4), 966-976
- DeDeo, S., **Hawkins, R.D.**, Klingenstein, S., Hitchcock, T. (2013). Bootstrap methods for the empirical study of decision-making and information flows in social systems. *Entropy*, 15(6), 2246-2276.
- Hawkins, R.D.***, Yamakoshi, T.* , Griffiths, T. (*under review*). Probing BERT’s priors with serial reproduction chains.
- White, J., **Hawkins, R.D.**, Sadigh, D., Goodman, N.D. (*under review*). Generating informative, open-domain clarification questions without question examples.
- Hernandez Cano, L. Pu, Y., **Hawkins, R.D.** Tenenbaum, J.T., Solar-Lezama, A. (*under review*). Community-driven alignment of natural and programming languages.

- Sumers, T., **Hawkins, R.D.**, Ho, M., Griffiths, T. (2021). Extending rational models of communication from beliefs to actions. *Proceedings of the Forty-Third Annual Conference of the Cognitive Science Society*. [oral]
- McCarthy, W.*, **Hawkins, R.D.***, Holdaway, C., Wang, H., Fan, J. (2021). Emergence of compositional abstractions in human collaborative assembly. *Proceedings of the Forty-Third Annual Conference of the Cognitive Science Society*. [oral]
- Kumar, A, Garg, K., **Hawkins, R.D.**, (2021). Contextual flexibility guides communication in a cooperative language game. *Proceedings of the Forty-Third Annual Conference of the Cognitive Science Society*. [poster]
- Hawkins, R.D.**, Liu, I., Goldberg, A.E., Griffiths, T. (2021). Respect the code: speakers expect conventions to generalize within but not across social group boundaries. *Proceedings of the Forty-Third Annual Conference of the Cognitive Science Society*. [poster]
- Sumers, T., Ho, M., **Hawkins, R.D.**, Narasimhan, K., Griffiths, T. (2021). Learning rewards from linguistic feedback. *Proceedings of the Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21)*. [oral]
- Hawkins, R.D.**, Kwon, M., Sadigh, D., Goodman, N.D. (2020). Continual adaptation for efficient machine communication. *Proceedings of the Twenty-Fourth Conference on Computational Natural Language Learning (CoNLL)*. [oral]
- Hawkins, R.D.***, Yamakoshi, T.*, Griffiths, T., Goldberg, A. (2020). Investigating representations of verb bias in neural language models. *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. [oral]
- Hawkins, R.D.**, Goodman, N.D., Goldberg, A.E., Griffiths, T.L. (2020). Generalizing meanings from partners to populations: Hierarchical inference supports convention formation on networks. *Proceedings of the Forty-Second Annual Conference of the Cognitive Science Society*. [oral]
- Leung, A., **Hawkins, R.D.**, Yurovsky, D. (2020). Parents scaffold the formation of conversational pacts with their children. *Proceedings of the Forty-Second Annual Conference of the Cognitive Science Society*. [oral]
- Achlioptas, P., Fan, J., **Hawkins, R.D.**, Goodman, N., Guibas, L. (2019). ShapeGlot: Learning language for shape differentiation. *Proceedings of the IEEE International Conference on Computer Vision (ICCV)*. [poster]
- Hawkins, R.D.***, Sano, M.*, Goodman, N., Fan, J. (2019). Graphical convention formation during visual communication. *Proceedings of the Forty-First Annual Conference of the Cognitive Science Society*. [oral]
- Mukherjee, K., **Hawkins, R.D.**, Fan, J. (2019). Communicating semantic part information in drawings. *Proceedings of the Forty-First Annual Conference of the Cognitive Science Society*. [poster]
- Hawkins, R.D.**, Franke, M., Smith, K., Goodman, N. (2018). Emerging abstractions: Lexical conventions are shaped by communicative context. *Proceedings of the Fortieth Annual Conference of the Cognitive Science Society*. [oral]
- Hawkins, R.D.**, Frank, M., Goodman, N. (2017). Convention-formation in iterated reference games. *Proceedings of the Thirty-Ninth Annual Conference of the Cognitive Science Society*. [oral]

- Graf, C., Degen, J., **Hawkins, R.D.**, Goodman, N. (2016). Animal, dog, or dalmatian? Level of abstraction in nominal referring expressions. *Proceedings of the Thirty-Eighth Annual Conference of the Cognitive Science Society*. [oral]
- Hawkins, R.D.**, Goodman, N. (2016). Conversational expectations account for apparent limits on theory of mind use. *Proceedings of the Thirty-Eighth Annual Conference of the Cognitive Science Society*. [oral]
- Hawkins, R.D.**, Stuhlmüller, A., Degen, J., Goodman, N. (2015). Why do you ask? Good questions provoke informative answers. *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*. [poster]
- Krafft, P. **Hawkins, R.D.**, Pentland, A., Goodman, N., Tenenbaum, J. (2015). Emergent collective sensing in human groups. *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*. [oral]
- BOOKS
(PRINT/WEB) Frank, M.C., Braginsky, M., Cachia, J., Coles, N., Hardwicke, T., **Hawkins, R.**, Mathur, M., Williams, R. (*under review*). Experimentology: An open science approach to experimental psychology methods.
- BOOK
CHAPTERS Algom, D., Eidels, A. **Hawkins, R.D.**, Jefferson, B., Townsend, J. (2015). Features of response times: Identification of cognitive mechanisms through mathematical modeling. In *The Oxford Handbook of Computational and Mathematical Psychology*.
- TECHNICAL
REPORTS Stuhlmüller, A., **Hawkins, R.D.**, Narayanaswamy, S., Goodman, N. (2015). Coarse-to-fine sequential Monte Carlo for probabilistic programs. *arXiv:1509.02962*.
- INVITED TALKS *2021*. [NeurIPS Workshop on Meaning in Context](#)
AI Lab Meeting, Autodesk
[Abralin ao Vivo](#), Brazilian Linguistic Association
[ILLC Computational Linguistic Seminar](#), University of Amsterdam
[Concepts and Categories \(ConCats\) Seminar](#), NYU
[Computational Psycholinguistics Group Meeting](#), Cornell
[Social Brain Brownbag](#), Dartmouth
2020. [RSS Workshop on Emergent Behaviors in Human-Robot Systems](#)
[Language Group Meeting](#), DeepMind
[Computation and Language Lab](#), UC Berkeley
2019. [CogSci Workshop on Teaching Methods via Replication Studies](#)
[Neuroscience and Social Decision Making \(NSDM\) Series](#), Princeton University
[TensorFlow and PyTorch User Group](#), Princeton University
[Center for Research in Language \(CRL\) Seminar](#), UCSD
2018. [Concepts and Categories \(ConCats\) Seminar](#), NYU
[PDP Seminar](#), Princeton University
[Symbolic Systems Society Winter Symposium](#), Stanford University
2017. [Interacting Minds Center \(IMC\) Seminar](#), Aarhus University

CONTRIBUTED
WORKSHOP
PAPERS &
CONFERENCE
ABSTRACTS

- Language Evolution Seminar, University of Edinburgh
Linguistics Colloquium, University of Tübingen
2014. STARS Research Symposium, Indiana University
‘Grey Matters’ Seminar, Indiana University
2021. Society for Personality and Social Psychology (*SPSP*).
47th Annual Meeting of the Society for Philosophy and Psychology (*SPP*).
ACL Workshop: Natural Language Processing for Programming (*NLP4Prog*).
NAACL Workshop: Visually Grounded Interaction and Language (*ViGIL*)
2020. NeurIPS Workshop: Object Representations for Learning & Reasoning (*ORLR*).
RSS Workshop: Emergent Behaviors in Human-Robot Systems.
2019. ICML Workshop: Adaptive and Multi-Task Learning (*AMTL*).
45th Annual Meeting of the Society for Philosophy and Psychology (*SPP*).
2018. Vision Sciences Society Annual Meeting (*VSS*).
12th International Conference on the Evolution of Language (*Evolang XII*).
2017. 7th Biannual Experimental Pragmatics Conference (*XPRAG*).
30th Annual *CUNY* Conference on Human Sentence Processing,
CSLI Workshop: Bridging Computational and Psycholinguistic Approaches to
the Study of Meaning.
91st Annual Meeting of the Linguistic Society of America (*LSA*)
2016. 22nd Architectures & Mechanisms for Language Processing Conference (*AMLaP*).
2015. 56th Annual Meeting of the Psychonomic Society.
14th Annual Summer Interdisciplinary Conference (*ASIC*).
10th Annual Network Science Society Conference (*NetSci*).
2014. 4th Annual Midwest Cognitive Science Conference (*MCSC*).
2013. Vision Sciences Society Annual Meeting (*VSS*).
54th Annual Meeting of the Psychonomic Society.
2012. Vision Sciences Society Annual Meeting (*VSS*).
Midwest Undergraduate Cognitive Science Conference (*MUCSC*).
2011. Configural Processing Consortium (*CPC*).
Object Perception, Attention, and Memory (*OPAM*).
Midwest Undergraduate Cognitive Science Conference (*MUCSC*).

ADVISING &
TEACHING

Mentorship

- Srija Makkapati, undergraduate at Princeton (2021-present)
- Takateru Yamakoshi, visiting undergraduate from University of Tokyo (2019-present)
- Sonia Murthy, undergraduate at Princeton (2020-2021)
- Irina Liu, undergraduate at Princeton (2020-2021)
- Megumi Sano, undergraduate at Stanford (2018-2019)
- Kushin Mukherjee, undergraduate at Vassar (2018-2019)
- Ethan Herenstein, Master's student at Stanford (2018)
- Karl Mulligan, undergraduate at Rutgers (2017)
- Nicole Maslan, undergraduate at Claremont McKenna (2016)

Guest Lectures

- Bayesian Models of Social Cognition (PSYC 272), Prof. Adena Schachner, UCSD
- Safety for Autonomous Systems (MAE 207), Prof. Sylvia Herbert, UCSD
- Topics in NLP and ML (CS 6741), Prof. Yoav Artzi, Cornell
- Introduction to Unsupervised Learning, AI4ALL Program, Princeton

Graduate Teaching Assistant, Stanford University

- Computation and Cognition: a Probabilistic Approach, Falls 2016, 2017, 2018
- Bayesian Statistics for Psychologists, Summer 2016
- Lab in Experimental Methods, Winter 2016
- Statistical Methods for Behavioral and Social Sciences, Fall 2015

Undergraduate Teaching Assistant, Indiana University

- Programming Languages, Fall 2012, Spring 2013
- Philosophical Foundations of Cognitive Science, Spring 2012

PROFESSIONAL
SERVICE

Ad Hoc Reviewing

- *Journals.* Behavior Research Methods; Child Development; Cognition; Cognitive Research: Principles and Implications; Cognitive Science; Computational Brain & Behavior; Frontiers in Psychology; iScience; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Human Perception and Performance; Nature Communications; Open Mind; PLoS ONE; PNAS; Sage OPEN; Trends in Cognitive Sciences; Vision Research.
- *Conference proceedings.* Cognitive Science Society (annual), *EVOLANG* (biannual)
- *Grant proposals.* NSF Perception, Action & Cognition program (PAC), NSF Decision, Risk & Management Sciences program (DRMS)

Conference Service

- Program committee, Social Intelligence in Humans & Robots workshop, ICRA, 2021
- Program committee, Bridging AI & Cognitive Science workshop, ICLR, 2019
- Co-organizer for "Emergence of Conventions" symposium, CogSci, 2016
- Co-organizer for Stanford-Berkeley Cognitive Area Meetup, 2015
- Co-organizer for Midwest Undergraduate Cognitive Science Conference, 2013

Open Software

- Developer for Probabilistic Models of Cognition web book (<https://probmods.org/>)
- Primary maintainer for `mdsdt` R package and `MWERT` JavaScript framework
- Contributor to `tidyboot` and `rwebppl` R packages

Departmental Service

- Stanford graduate program committee, 2015-2018

- Co-organizer for Stanford cognitive science training seminar, 2017-2018
- Co-organizer for Stanford Cog/Neuro area training seminar, 2016-2017
- Stanford graduate admissions committee, 2015-2016

President of IU Student Organization for Cognitive Science, 2011 - 2012
IU Vice Provost for Undergraduate Education Advisory Board, 2011 - 2012