Curriculum Vitae of Noah D. Goodman

Stanford University
Department of Psychology
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Research Interests

Computational models of cognition.
Social and affective cognition.
Representation and use of concepts and intuitive theories.
Natural language semantics and pragmatics.
Cognitive development. Probabilistic programming languages.

Professional Positions

Assistant Professor of Cognitive Psychology, Stanford University, 2010 -.
(By courtesy, Assistant Professor of Linguistics and of Computer Science.)

Research Scientist, Massachusetts Institute of Technology, 2008-2010.

Post-Doctoral Associate, Massachusetts Institute of Technology, 2005-2008.

Lecturer, St. Edwards University, 2004-2005.

Education

Ph.D., Mathematics, University of Texas at Austin, 2003.

B.S. Physics, Cum Laude, University of Arizona, 1997.

B.A. Mathematics, Cum Laude, University of Arizona, 1997.

Grants

Amortized Inference for Probabilistic Programs, DARPA, Oct 2013 - Jul 2017.

Grounding Lexical Meaning in Core Cognition, ONR, Sep 2013 - Sep 2016.

Development of probmods.org web-book, Stanford VPOL, 2013.

A Center for Brains, Minds and Machines: The Science and the Technology of Intelligence, NSF, Sep 2013 - Sep 2017 (Sub-award from MIT, PI: Poggio).

Grounded language understanding as social cognition, ONR, Jan 2013 - Jan 2016 (PI: Potts).

Embedded Humans: Provably Correct Decision Making for Networks of Humans and Unmanned Systems, ONR, Feb 2013 - Dec 2017 (Sub-award from Berkeley, PI: Sastry; Stanford PI: Guibas).

J. S. McDonnell Foundation Scholar Award, Oct 2010 - Oct 2016.

A Framework for Core Cognition, ONR, Jul 2009 - Dec 2012 (PI: Tenenbaum).

Honors

2015 Cognitive Science Society paper prize for applied computational modeling.

2014 Cognitive Science Society paper prize for computational modeling of language.

Roger N. Shepard Distinguished Visiting Scholar, 2013-14, University of Arizona.

John Philip Coghlan Fellow, 2013-14 and 2014-15.

2012 Cognitive Science Society paper prize for computational modeling of language.

2011 International Joint Conference on Artificial Intelligence best poster prize.

2011 Cognitive Science Society paper prize for computational modeling of language.

2007 Cognitive Science Society paper prize for computational modeling of higher-level cognition.

2007 Cognitive Science Society paper prize for computational modeling of perception and action.

NSF VIGRE Fellowship, 2001-2002.

University of Texas Continuing Graduate Study Fellowship, 2001-2002.

Bruton Graduate Fellowship, 2000.

National Merit Scholarship, 1994-1997.

Publications

Peer-reviewed Journal Articles

Piantadosi, S. T., Tenenbaum, J. B., & Goodman, N. D. The logical primitives of thought: Empirical foundations for compositional cognitive models. *Psychological Review*. (To appear)

Bergen, L., Levy, R., & Goodman, N. D. Pragmatic Reasoning through Semantic Inference. *Semantics And Pragmatics*. (To appear)

Lassiter, D., & Goodman, N. D. (2015). How many kinds of reasoning? Inference, probability, and natural language semantics. *Cognition*, *136*, 123–134.

Lassiter, D., & Goodman, N. D. (2015). Adjectival vagueness in a Bayesian model of interpretation. *Synthese*.

Kao, J. T., Levy, R., & Goodman, N. D. (2015). A computational model of linguistic humor in puns. *Cognitive Science*.

Griffiths, T. L., Lieder, F., & Goodman, N. D. (2015). Rational use of cognitive resources: Levels of analysis between the computational and the algorithmic. *Topics In Cognitive Science*, *7*(2), 217–229.

Bergen, L., & Goodman, N. D. (2015). The strategic use of noise in pragmatic reasoning. *Topics In Cognitive Science*, *7*(2), 336–350.

Ong, D. C., Zaki, J., & Goodman, N. D. (2015). Affective Cognition: Exploring lay theories of emotion. *Cognition*, *143*, 141–162.

Goodman, N. D., Frank, M. C., Griffiths, T. L., Tenenbaum, J. B., Battaglia, P., & Hamrick, J. (2015). Relevant and robust. A response to Marcus and Davis. *Psychological Science*, *26*(4), 539–541.

Stiller, A. J., Goodman, N. D., & Frank, M. C. (2015). Ad-hoc scalar implicature in preschool children. *Language Learning And Development*, *11*(2), 176–190.

Pierson, E., & Goodman, N. D. (2014). Uncertainty and denial: a resource-rational model of the value of information. *PLoS ONE*, *9*(11), e113342.

Kao, J. T., Wu, J., Bergen, L., & Goodman, N. D. (2014). Nonliteral understanding of number words. *Proceedings Of the National Academy of Sciences*, *111*(33), 12002–12007.

Shafto, P., Goodman, N. D., & Griffiths, T. L. (2014). A rational account of pedagogical reasoning: Teaching by, and learning from, examples. *Cognitive Psychology*, *71*, 55–89.

Frank, M. C., & Goodman, N. D. (2014). Inferring word meanings by assuming that speakers are informative. *Cognitive Psychology*, *75*, 80–96.

Vul, E., Goodman, N. D., Griffiths, T. L., & Tenenbaum, J. B. (2014). One and Done? Optimal Decisions From Very Few Samples. *Cognitive Science*, *38*(4), 599–637.

Stuhlmüller, A., & Goodman, N. D. (2014). Reasoning about Reasoning by Nested Conditioning: Modeling Theory of Mind with Probabilistic Programs. *J. Cognitive Systems Research*, *28*, 80–99.

Seiver, E., Gopnik, A., & Goodman, N. D. (2013). Did she jump because she was the big sister or because the trampoline was safe? Causal inference and the development of social attribution. *Child Development*, *84*(2), 443–454.

Goodman, N. D., & Stuhlmüller, A. (2013). Knowledge and implicature: Modeling language understanding as social cognition. *Topics In Cognitive Science*, *5*, 173–184.

Hamlin, K. J., Ullman, T., Tenenbaum, J. B., Goodman, N. D., & Baker, C. (2013). The mentalistic basis of core social cognition: experiments in preverbal infants and a computational model. *Developmental Science*, *16*(2), 209–226.

Ullman, T., Goodman, N. D., & Tenenbaum, J. B. (2012). Theory learning as stochastic search in the language of thought. *Cognitive Development*, *27*(4), 455–480.

Frank, M. C., & Goodman, N. D. (2012). Predicting pragmatic reasoning in language games. *Science*, *336*(6084), 998–998.

Shafto, P., Goodman, N. D., & Frank, M. C. (2012). Learning from others: The consequences of psychological reasoning for human learning. *Perspectives On Psychological Science*, *7*(4), 341–351.

Piantadosi, S. T., Tenenbaum, J. B., & Goodman, N. D. (2012). Bootstrapping in a language of thought: A formal model of numerical concept learning. *Cognition*, *123*(2), 199–217.

Scontras, G., Graff, P., & Goodman, N. D. (2012). Comparing pluralities. *Cognition*, *123*(1), 190–197.

Chater, N., Goodman, N., Griffiths, T. L., Kemp, C., Oaksford, M., & Tenenbaum, J. B. (2011). The imaginary fundamentalists: The unshocking truth about Bayesian cognitive science. *Behavioral And Brain Sciences*, *34*(04), 194–196. (Commentary on Jones and Love.)

Bonawitz, E., Shafto, P., Gweon, H., Goodman, N. D., Spelke, E., & Schulz, L. (2011). The double-edged sword of pedagogy: Instruction limits spontaneous exploration and discovery. *Cognition*, *120*(3), 322–330.

Cook, C., Goodman, N. D., & Schulz, L. E. (2011). Where science starts: Spontaneous experiments in preschoolers' exploratory play. *Cognition*, *120*(3), 341–349.

Tenenbaum, J. B., Kemp, C., Griffiths, T. L., & Goodman, N. D. (2011). How to grow a mind: Statistics, structure, and abstraction. *Science*, *331*(6022), 1279–1285.

Goodman, N. D., Ullman, T. D., & Tenenbaum, J. B. (2011). Learning a theory of causality. *Psychological Review*, *118*(1), 110.

Kemp, C., Goodman, N. D., & Tenenbaum, J. B. (2010). Learning to learn causal models. *Cognitive Science*, *34*(7), 1185–1243.

Desrochers, T. M., Jin, D. Z., Goodman, N. D., & Graybiel, A. M. (2010). Optimal habits can develop spontaneously through sensitivity to local cost. *Proceedings Of the National Academy of Sciences*, *107*(47), 20512–20517.

Frank, M., Kenney, A., Goodman, N., Tenenbaum, J., Torralba, A., & Oliva, A. (2010). Predicting object and scene descriptions with an information-theoretic model of pragmatics. *Journal Of Vision*, *10*(7), 1241–1241.

Henderson, L., Goodman, N. D., Tenenbaum, J. B., & Woodward, J. F. (2010). The Structure and Dynamics of Scientific Theories: A Hierarchical Bayesian Perspective. *Philosophy Of Science*, *77*(2), 172–200.

Frank, M. C., Goodman, N. D., & Tenenbaum, J. B. (2009). Using speakers' referential intentions to model early cross-situational word learning. *Psychological Science*, *20*(5), 578–585.

Schulz, L. E., Goodman, N. D., Tenenbaum, J. B., & Jenkins, A. C. (2008). Going beyond the evidence: abstract laws and preschoolers' responses to anomalous data. *Cognition*, *109*(2), 211–223. doi:n.2008.07.017

Goodman, N. D., Tenenbaum, J. B., Feldman, J., & Griffiths, T. L. (2008). A Rational Analysis of Rule-based Concept Learning. *Cognitive Science*, *32*(1), 108—154.

Giroux, E. & Goodman, N. D. (2006). On the stable equivalence of open books in three-manifolds. *Geometry & Topology*.

Goodman, N. D. (2005). Overtwisted open books from sobering arcs. *Algebraic and Geometric Topology*.

Peer-reviewed Conference Proceedings

Evans, O., Stuhlmüller, A., & Goodman, N. D. (2016). Learning the Preferences of Ignorant, Inconsistent Agents. In *Proceedings of the 30th AAAI Conference on Artificial Intelligence (AAAI-2016)*.

Bennett, E., & Goodman, N. D. (2015). Extremely costly intensifiers are stronger than quite costly ones. In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*.

Sumner, E., DeAngelis, E., Hyatt, M., Goodman, N. D., & Kidd, C. (2015). Toddlers Always Get the Last Word: Recency biases in early verbal behavior. In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*.

Ritchie, D., Lin, S., Goodman, N. D., & Hanrahan, P. (2015). Generating Design Suggestions under Tight Constraints with Gradient-based Probabilistic Programming. In *Proceedings of Eurographics 2015*. [**Best paper award honorable mention.**]

Ritchie, D., Mildenhall, B., Goodman, N. D., & Hanrahan, P. (2015). Controlling Procedural Modeling Programs with Stochastically-Ordered Sequential Monte Carlo. In *SIGGRAPH 2015*.

Ong, D. C., Goodman, N. D., & Zaki, J. (2015). Near-misses sting even when they are uncontrollable. In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*.

Krafft, P. M., Hawkins, R. X. D., Pentland, A., Goodman, N. D., & Tenenbaum, J. B. (2015). Emergent Collective Sensing in Human Groups. In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*. [**Winner of the 2015 Cognitive Science Society computational modeling prize for Applied Cognition.**]

Kao, J. T., & Goodman, N. D. (2015). Let's talk (ironically) about the weather: Modeling verbal irony. In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*.

Icard III, T. F., & Goodman, N. D. (2015). A Resource-Rational Approach to the Causal Frame Problem. In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*.

Hawthorne, D., & Goodman, N. D. (2015). So good it has to be true: Wishful thinking in theory of mind. In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*.

Hawkins, R. X. D., Stuhlmüller, A., Degen, J., & Goodman, N. D. (2015). Why do you ask? Good questions provoke informative answers. In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*.

Gerstenberg, T., Goodman, N. D., Lagnado, D. A., & Tenenbaum, J. B. (2015). How, whether, why: Causal judgments as counterfactual contrasts. In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*.

Degen, J., Tessler, M. H., & Goodman, N. D. (2015). Wonky worlds: Listeners revise world knowledge when utterances are odd. In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*.

Luong, T., O'Donnell, T., & Goodman, N. D. (2015). Evaluating Models of Computation and Storage in Human Sentence Processing. In *CogACLL 2015*.

Bass, I., Hawthorne, D., Goodman, N. D., & Gweon, H. (2015). Not by number alone: The effect of teacher's knowledge and its value in evaluating "sins of omission". In *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*.

Ullman, T. D., Stuhlmüller, A., Goodman, N. D., & Tenenbaum, J. B. (2014). Learning physics from dynamical scenes. In *Proceedings of the Thirty-Sixth Annual Conference of the Cognitive Science society*.

Yang, L., Hanrahan, P., & Goodman, N. D. (2014). Generating Efficient MCMC Kernels from Probabilistic Programs. In *AISTATS*.

Tessler, M. H., & Goodman, N. D. (2014). Some arguments are probably valid: Syllogistic reasoning as communication. In *Proceedings of the Thirty-Sixth Annual Conference of the Cognitive Science Society*.

Gerstenberg, T., Goodman, N. D., Lagnado, D. A., & Tenenbaum, J. B. (2014). From counterfactual simulation to causal judgment. In *Proceedings of the Thirty-Sixth Annual Conference of the Cognitive Science Society*.

Gershman, S., & Goodman, N. D. (2014). Amortized inference in probabilistic reasoning. In *Proceedings of the Thirty-Sixth Annual Conference of the Cognitive Science Society*.

Degen, J., & Goodman, N. D. (2014). Lost your marbles? The puzzle of dependent measures in experimental pragmatics. In *Proceedings of the Thirty-Sixth Annual Conference of the Cognitive Science Society.*

Kao, J. T., Bergen, L., & Goodman, N. D. (2014). Formalizing the pragmatics of metaphor understanding. In *Proceedings of the Thirty-Sixth Annual Conference of the Cognitive Science Society.*

Bergen, L., & Goodman, N. D. (2014). The strategic use of noise in pragmatic reasoning. In *Proceedings of the Thirty-Sixth Annual Conference of the Cognitive Science Society.* [**Winner of the 2014 Cognitive Science Society computational modeling prize for Language.**]

Stuhlmüller, A., Taylor, J., & Goodman, N. (2013). Learning Stochastic Inverses. In *Advances in Neural Information Processing Systems.*

Smith, N. J., Goodman, N., & Frank, M. (2013). Learning and using language via recursive pragmatic reasoning about other agents. In C. J. C. Burges, L. Bottou, M. Welling, Z. Ghahramani, & K. Q. Weinberger (Eds.), *Advances in Neural Information Processing Systems 26* (pp. 3039–3047). Curran Associates, Inc.

Kao, J. T., Levy, R., & Goodman, N. D. (2013). The Funny Thing About Incongruity: A Computational Model of Humor in Puns. In *Proceedings of the Thirty-Fifth Annual Conference of the Cognitive Science Society.*

Lieder, F., Goodman, N. D., & Huys, Q. J. M. (2013). Learned helplessness and generalization. In *Proceedings of the Thirty-Fifth Annual Conference of the Cognitive Science Society.*

Lassiter, D., & Goodman, N. D. (2013). Context, scale structure, and statistics in the interpretation of positive-form adjectives. In *Semantics and Linguistic Theory (SALT) 23* (pp. 587–610).

Bergen, L., Goodman, N. D., & Levy, R. (2012). That's what she (could have) said: How alternative utterances affect language use. In *Proceedings of the thirty-fourth annual conference of the Cognitive Science Society.*

Lassiter, D., & Goodman, N. D. (2012). How many kinds of reasoning? Inference, probability, and natural language semantics. In *34th Annual Conference of the Cognitive Science Society.*

Gerstenberg, T., Goodman, N., Lagnado, D. A., & Tenenbaum, J. B. (2012). Noisy Newtons: Unifying process and dependency accounts of causal attribution. In *Proceedings of the Thirty-Fourth Annual Conference of the Cognitive Science Society.*

Gerstenberg, T., & Goodman, N. D. (2012). Ping pong in Church: Productive use of concepts in human probabilistic inference. In *Proceedings of the 34th annual conference of the Cognitive Science Society.*

Stuhlmüller, A., & Goodman, N. D. (2012). A dynamic programming algorithm for inference in recursive probabilistic programs. In *Second Statistical Relational AI workshop at UAI 2012 (StaRAI-12).*

Goodman, N. D., & Stuhlmüller, A. (2012). Knowledge and implicature: Modeling language understanding as social cognition. In *Proceedings of the Thirty-Fourth Annual Conference of the Cognitive Science Society.* [**Winner of the 2012 Cognitive Science Society computational modeling prize for Language.**]

Yeh, Y.-T., Yang, L., Watson, M., Goodman, N. D., & Hanrahan, P. (2012). Synthesizing open worlds with constraints using locally annealed reversible jump MCMC. In *SIGGRAPH 2012* (Vol. 31, p. 56).

Talton, J., Yang, L., Kumar, R., Lim, M., Goodman, N. D., & Mech, R. (2012). Learning design patterns with bayesian grammar induction. In *Proceedings of the 25th annual ACM symposium on User interface software and technology* (pp. 63–74). [**Nominated for Best Paper Award.**]

Lieder, F., Griffiths, T. L., & Goodman, N. D. (2012). Burn-in, bias, and the rationality of anchoring. In *Advances in Neural Information Processing Systems* (pp. 2699–2707).

Wingate, D., Goodman, N. D., Roy, D. M., Kaelbling, L. P., & Tenenbaum, J. B. (2011). Bayesian policy search with policy priors. In *Proceedings of the Twenty-Second international joint conference on Artificial Intelligence (IJCAI 11)*. **[Winner of the Best Poster prize]**

Wingate, D., Goodman, N. D., Stuhlmueller, A., & Siskind, J. M. (2011). Nonstandard Interpretations of Probabilistic Programs for Efficient Inference. In *Advances in Neural Information Processing Systems 23* (pp. 1152–1160).

Stiller, A., Goodman, N. D., & Frank, M. C. (2011). Ad-hoc scalar implicature in adults and children. In *Proceedings of the 33rd Annual Meeting of the Cognitive Science Society*.

O'donnell, T. J., Snedeker, J., Tenenbaum, J. B., & Goodman, N. D. (2011). Productivity and reuse in language. In *Proceedings of the Thirty-Third Annual Conference of the Cognitive Science Society*. **[Winner of the 2011 Cognitive Science Society computational modeling prize for Language.]**

Wingate, D., Stuhlmüller, A., & Goodman, N. D. (2011). Lightweight implementations of probabilistic programming languages via transformational compilation. In *Proceedings of the 14th international conference on Artificial Intelligence and Statistics* (pp. 770–778).

Shafto, P., Goodman, N. D., Gerstle, B., & Ladusaw, F. (2010). Prior expectations in pedagogical situations. In *Proceedings of the Thirty-Second Annual Conference of the Cognitive Science Society*.

Stuhlmüller, A., Tenenbaum, J. B., & Goodman, N. D. (2010). Learning structured generative concepts. In *Proceedings of the Thirty-Second Annual Conference of the Cognitive Science Society*.

Piantadosi, S. T., Tenenbaum, J. B., & Goodman, N. D. (2010). Beyond Boolean logic: exploring representation languages for learning complex concepts. In *Proceedings of the 32nd Annual Conference of the Cognitive Science Society* (pp. 859–864).

Ullman, T. D., Goodman, N. D., & Tenenbaum, J. B. (2010). Theory Acquisition as Stochastic Search. In *Proceedings of Thirty Second Annual Meeting of the Cognitive Science Society*.

Goodman, N. D., Ullman, T. D., & Tenenbaum, J. B. (2009). Learning a theory of causality. In *Proceedings of the 31st Annual Conference of the Cognitive Science Society*.

Wingate, D., Goodman, N. D., Roy, D. M., & Tenenbaum, J. B. (2009). The infinite latent events model. In *Proceedings of the Twenty-Fifth Conference on Uncertainty in Artificial Intelligence* (pp. 607–614). AUAI Press.

Vul, E., Goodman, N. D., Griffiths, T. L., & Tenenbaum, J. B. (2009). One and done: Globally optimal behavior from locally suboptimal decisions. In *Proceedings of the 31st Annual Conference of the Cognitive Science Society*.

Schmidt, L. A., Goodman, N. D., Barner, D., & Tenenbaum, J. B. (2009). How tall is Tall? compositionality, statistics, and gradable adjectives. In *Proceedings of the 31st annual conference of the Cognitive Science Society* (pp. 2759–2764).

Frank, M. C., Goodman, N. D., Tenenbaum, J. B., & Fernald, A. (2009). Continuity of discourse provides information for word learning. In *Proceedings of the 31st Annual Cognitive Science Society*.

Goodman, N. D., Baker, C. L., & Tenenbaum, J. B. (2009). Cause and intent: Social reasoning in causal learning. In *Proceedings of the 31st Annual Conference of the Cognitive Science Society*.

Ullman, T., Baker, C. L., Macindoe, O., Evans, O., Goodman, N. D., & Tenenbaum, J. B. (2009). Help or hinder: Bayesian models of social goal inference. In *Advances in Neural Information Processing Systems 22*.

Frank, M. C., Goodman, N. D., Lai, P., & Tenenbaum, J. B. (2009). Informative communication in word production and word learning. In *Proceedings of the 31st Annual Conference of the Cognitive Science Society*.

Baker, C. L., Goodman, N. D., & Tenenbaum, J. B. (2008). Theory-based Social Goal Inference. In *Proceedings of Thirtieth Annual Meeting of the Cognitive Science Society*.

Mayrhofer, R., Goodman, N. D., Waldmann, M. R., & Tenenbaum, J. B. (2008). Structured Correlation from the Causal Background. In *Proceedings of the Thirtieth Annual Conference of the Cognitive Science Society*.

Katz, Y., Goodman, N. D., Kersting, K., Kemp, C., & Tenenbaum, J. B. (2008). Modeling Semantic Cognition as Logical Dimensionality Reduction. In *Proceedings of the Thirtieth Annual Conference of the Cognitive Science Society*.

Kemp, C., Goodman, N. D., & Tenenbaum, J. B. (2008). Theory acquisition and the language of thought. In *Proceedings of Thirtieth Annual Meeting of the Cognitive Science Society*.

Piantadosi, S. T., Goodman, N. D., Ellis, B. A., & Tenenbaum, J. B. (2008). A Bayesian Model of the Acquisition of Compositional Semantics. In *Proceedings of Thirtieth Annual Meeting of the Cognitive Science Society*.

Shafto, P., & Goodman, N. D. (2008). Teaching Games: Statistical Sampling Assumptions for Learning in Pedagogical Situations. In *Proceedings of the Thirtieth Annual Meeting of the Cognitive Science Society*.

Goodman, N. D., Mansinghka, V. K., Roy, D. M., Bonawitz, K., & Tenenbaum, J. B. (2008). Church: a language for generative models. In *Uncertainty in Artificial Intelligence*.

Kemp, C., Goodman, N. D., & Tenenbaum, J. B. (2007). Learning and using relational theories. In *Advances in Neural Information Processing Systems*.

Kemp, C., Goodman, N. D., & Tenenbaum, J. B. (2007). Learning causal schemata. In *Proceedings of the Twenty-ninth Annual Meeting of the Cognitive Science Society*. **[Winner of the 2007 Cognitive Science Society computational modeling prize for Higher-level Cognition.]**

Frank, M. C., Goodman, N. D., & Tenenbaum, J. B. (2007). A bayesian framework for crosssituational word-learning. In *Advances in Neural Information Processing Systems* (Vol. 20). MIT Press.

Goodman, N. D., Mansinghka, V., & Tenenbaum, J. B. (2007). Learning grounded causal models. In *Proceedings of the Twenty-Ninth Annual Conference of the Cognitive Science Society*. **[Winner of the 1007 Cognitive Science Society computational modeling prize for Perception and Action.]**

Goodman, N. D., Baker, C. L., Baraff-Bonawitz, E., Mansinghka, V. K., Gopnik, A., Wellman, H., ... Tenenbaum, J. B. (2006). Intuitive theories of mind: a rational approach to false belief. In *Proceedings of the Twenty-Eight Annual Conference of the Cognitive Science Society*.

Goodman, N. D., Griffiths, T. L, Feldman, J., and Tenenbaum, J. B. (2007). A rational analysis of rule-based concept learning. In *Proceedings of the Twenty-Ninth Annual Conference of the Cognitive Science Society*.

Henderson, L., Goodman, N. D., Tenenbaum, J. B., and Woodward, J. (2007). Frameworks in science: a Bayesian approach. *LSE-Pitt Conference Confirmation, Induction and Science*.

Chapters

Goodman, N. D., Tenenbaum, J. B., & Gerstenberg, T. (2015). Concepts in a probabilistic language of thought. In Morgolis & Lawrence (Eds.), *The Conceptual Mind: New Directions in the Study of Concepts*. MIT Press.

Goodman, N. D., & Lassiter, D. (2015). Probabilistic Semantics and Pragmatics: Uncertainty in Language and Thought. In S. Lappin & C. Fox (Eds.), *The Handbook of Contemporary Semantic Theory, 2nd Edition*. Wiley-Blackwell.

Goodman, N. D., Tenenbaum, J. B., Griffiths, T. L., & Feldman, J. (2008). Compositionality in rational analysis: Grammar-based induction for concept learning. In M. Oaksford & N. Chater (Eds.), *The probabilistic mind: Prospects for rational models of cognition*. Oxford University Press.

Books (print and web)

Tenenbaum, J. B., Griffiths, T. L., Chater, N., Kemp, C., Goodman, N. D., & Yuille, A. *Reverse engineering the mind: the Bayesian approach*. (in prep)

Goodman, N. D., & Stuhlmüller, A. (2015). *The Design and Implementation of Probabilistic Programming Languages*. (`http://dippl.org`)

Goodman, N. D., & Tenenbaum, J. B. (2014). *Probabilistic Models of Cognition*. (`https://probmods.org`)

Technical Reports

Ritchie, D., Stuhlmüller, A., & Goodman, N. D. (2015). *C3: Lightweight Incrementalized MCMC for Probabilistic Programs using Continuations and Callsite Caching. Technical report: arXiv:1509.02151.*

Stuhlmüller, A., Hawkins, R. X. D., Siddharth, N., & Goodman, N. D. (2015). *Coarse-to-Fine Sequential Monte Carlo for Probabilistic Programs. Technical report: arXiv:1509.02962.*

Hwang, I., Stuhlmüller, A., & Goodman, N. D. (2011). *Inducing probabilistic programs by Bayesian program merging. Technical report: arXiv:1110.5667.*

O'Donnell, T. J., Tenenbaum, J. B., & Goodman, N. D. (2009). *Fragment grammars: Exploring computation and reuse in language. Technical Report MIT-CSAIL-TR-2009-013.* Massachusetts Institute of Technology.

McAllester, D., Milch, B., & Goodman, N. D. (2008). *Random-World Semantics and Syntactic Independence for Expressive Languages* (No. MIT-CSAIL-TR-2008-025). Massachusetts Institute of Technology.

Other

Goodman, N. D. (2013). *Grounding Lexical Meaning in Core Cognition*. (Unpublished manuscript.)

Goodman, N. D. (2013). The principles and practice of probabilistic programming. *POPL 2013*. (Extended abstract of keynote talk.)

Roy, D. M., Mansinghka, V. K., Goodman, N. D., & Tenenbaum, J. B. (2008). A stochastic programming perspective on nonparametric Bayes. *Nonparametric Bayesian Workshop, Int. Conf. on Machine Learning*.

Software

Webchurch, MIT-Church, Bher, Cosh. Implementations of the Church probabilistic programming language.

WebPPL. A javascript-based probabilistic programming language.

Popular Press (selected articles)

"A grand unified theory of AI," MIT News, March 30, 2010.

"I, algorithm." New Scientist, January 29, 2011.

"More Than Child's Play: Ability to Think Scientifically Declines as Kids Grow Up." Scientific American, September 21, 2011.

"Artificial Intelligence Could Be on Brink of Passing Turing Test." WIRED, April 12, 2012.

"Context is key to making computers better conversationalists." WIRED.uk, June 20, 2012.

"Forget the Turing Test: Here's How We Could Actually Measure AI." WIRED, June 12, 2014.

"Solve For Standing Ovation: Should AI Researchers Bother Building A TED-Bot?" Popular Science, March 28, 2014.

"This Computer Knows When 'Literally' Isn't Literal." Discover, August 5, 2014.

"Why Can't Robots Understand Sarcasm?" The Atlantic, January 22, 2015.

"Think you're punny? Computer that can tell how good a joke is." New Scientist, August 12, 2015.

"Call it Clement Droid: a machine that has a droll sense of humour." The Times, August 15, 2015.

Invited Presentations

Linguistic Universals Colloquium, Harvard University, Cambridge, MA, October 2015.

CS, Brown University, Providence, RI, October 2015.

CLPS Colloquium, Brown University, Providence, RI, October 2015.

ILLC Colloquium, University of Edinburgh, Edinburgh, UK, September 2015.

XPRAG 7, Plenary Speaker, Chicago, IL, July 2015.

Microsoft Faculty Summit, Seattle, WA, July 2015.

AAAI symposium on Knowledge Representation and Reasoning, Stanford, CA, March 2015.

UCSD seminar on Computational and Experimental Pragmatics, San Diego, CA, February 2015.

Princeton Cognitive Science Colloquium, Princeton, NJ, January 2015.

University of Maryland Cognitive Science Colloquium, College Park, MD, January 2015.

University of Maryland NLP Seminar, College Park, MD, January 2015.

Northwestern University Linguistics Colloquium, Evanston, IL, January 2015.

Cognitive Science Society invited symposium "Foundations of Social Cognition", Quebec City, Canada, July 2014.

NYU Psychology, New York, April 2014.

DE Shaw Tech Talk, New York, April 2014.

University of Arizona Cognitive Science Colloquium, Tucson, AZ, February 2014.

AI Colloquium, Groningen, Netherlands, February 2014.

Amsterdam Colloquium, Amsterdam, Netherlands, December 2013.

NeuroSpin, Paris, France, December 2013.

IIIS Machine Learning Seminar, Tsinghua University, Beijing, China, October 2013.

"Logic across the university" workshop, Tsinghua University, Beijing, China, October 2013.

Intelligence Initiative Seminar, MIT, Cambridge, MA, September 2013.

Laboratory for Developmental Science Seminar, Harvard, Cambridge, MA, September 2013.

CogSci workshop "Producing Referring Expressions", Berlin, Germany, August 2013.

CogSci workshop "Motivations and Goals in Developing Integrative Models of Human Cognition", Berlin, Germany, August 2013.

"Rational Choice Workshop", Dept. of Economics, University of Chicago, Chicago, IL, May 2013.

UT-Austin Linguistics Colloquium, Austin, TX, April 2013.

UT-Austin Cognitive Systems Forum, Austin, TX, April, 2013.

Google, Mountain View, CA, April 2013.

Intel, Sunnyvale, CA, April 2013.

IMBS workshop "Quantum thinking", Irvine, CA, February 2013.

Keynote, Principles of Programming Languages (POPL 13), Rome, Italy, January 2013.

Linguistics Colloquium, Tubingen, Germany, January 2013.

Invited Symposium, Budapest CEU Conference on Cognitive Development, Budapest, Hungary, January 2013.

Indiana Cognitive Science Colloquium, Bloomington, IN, November 2012.

Statistical Relational Artificial Intelligence workshop, UAI, Avalon, CA, August 2012.

Early Career Keynote Speaker, International Conference on Thinking, symposium on Causal Learning & Reasoning, London 2012.

Early Career Keynote Speaker, International Conference on Thinking, symposium on Inductive Reasoning, London 2012.

Reasoning and Interaction workshop, UT-Austin, Austin, TX, June 2012.

Workshop "Interdisciplinary approaches to implicature." MIT, Cambridge, MA, May 2012.

California Cognitive Science Conference, Berkeley, CA, April 2012.

International Congress on Computer Vision, Vision Grammars Workshop, Barcelona, Spain, November 2011.

UC Berkeley Institute for Human Development seminar, Berkeley, CA, October 2011.

UC Berkeley Institute for Cognitive and Brain Sciences seminar, Berkeley, CA, September 2011.

Gatsby Unit special seminar, University College, London, UK, September 2011.

London Judgment and Decision Making seminar, London, UK, September 2011.

AAAI workshop on Plan and Intent Recognition, San Francisco, CA, August 2011.

UC Merced Cognitive and Information Sciences Colloquium, Merced, CA, March 2011.

UCSC Psychology Colloquium, Santa Cruz, CA, February 2011.

Neural Information Processing Systems workshop "Modeling human communication dynamics". Whistler, BC, December 2010.

SRI, Menlo Park, CA, November 2010.

UCSD Psychology Colloquium, San Diego, CA, November 2010.

CSLI Symposium, Stanford University, Stanford, CA, October 2010.

Humanity+ Summit, Harvard University, Cambridge, MA, June 2010.

Cornell Workshop on Grammar Induction, Ithaca, NY, May 2010.

Massachusetts General Hospital, Biostatistics Seminar. Boston, MA, March 2010.

Johns Hopkins University, Psychology Department special seminar. Baltimore, MD, January 2010.

Stanford University, Psychology Department special seminar. Stanford, CA, January 2010.

University of Rochester, Brain and Cognitive Sciences colloquium. Rochester, NY, October 2009.

University of Michigan, Developmental Psychology Brown Bag seminar. Ann Arbor, MI, October 2009.

Brown University, Pattern Theory seminar. Providence, RI, October 2009.

University of Edinburgh, Informatics Division colloquium. Edinburgh, UK, July 2009.

Banff International Research Station workshop "Probabilistic models of cognitive development". Banff, BC, May 2009.

Invited commentary, Interdisciplinary Graduate Conference on Consciousness. Boston, MA, April 2009.

MIT, Brain and Cognitive Sciences special seminar. Boston, MA, March 2009.

Neural Information Processing Systems workshop "Probabilistic programming", Whistler, BC, December 2008.

Neural Information Processing Systems workshop "Human learning meets machine learning". Whistler, BC, December 2008.

New York University, Developmental Psychology seminar. New York, NY, October 2008.

Keynote speaker, International Conference on Inductive Logic Programming. Prague, September 2008.

University of Texas, Cognitive Psychology seminar. Austin, TX, August 2008.

Center for Advanced Study in the Behavioral Sciences workshop "Early mechanisms of understanding social causation" (Festschrift for John S. Watson). Stanford, CA, April 2008.

International Conference on Infant Studies invited symposium "From statistical regularities to conceptual inference". Vancouver, BC, March 2008.

ONR Workshop on Computational Social Cognition. MIT, Cambridge, MA, March 2008.

Harvard university, Psychology colloquium. Cambridge, MA, February 2008.

University of California, Berkeley, Computational Cognitive Science seminar. Berkeley, CA, November 2007.

AAAI Fall Symposia workshop "Representation Change". Washington, DC, November 2007.

Society for Philosophy and Psychology. Toronto, ON, June 2007. (Invited commentary on D. Lyons, "Covert Rationality: Overimitation and the Structure of Children's Causal Learning".)

McDonnell Foundation Workshop on Moral Cognition. Pasadena, CA, May 2007.

University of Salzburg, Institute fur Psychologie colloquium. Salzburg, AU, April 2007.

University of Gottingen, Cognitive and Decision Sciences seminar. Gottingen, GM, April 2007.

Rutgers University, Center for Cognitive Science seminar. Piscataway, NJ, March 2007.

Society for Philosophy and Psychology, Invited symposium on Causality. St. Louis, MO, June 2006.

University of California, Berkeley, Cognitive Development seminar. Berkeley, CA, 2006.

University of Michigan, Developmental Psychology seminar. Ann Arbor, MI, 2006.

Brown University, Cognitive Science seminar. Providence, RI, 2005.

M.I.T., Computational Cognitive Science seminar. Cambridge, MA, December 2004.

Bryn Mawr College, Contact Topology seminar. Bryn Mawr, PA, April 2003.

University of Pennsylvania, Department of Mathematics Geometry-Topology seminar. Philadelphia, PA, January 2003.

University of Texas at Austin, Department of Mathematics Topology seminar. Austin, TX, March 2002.

Columbia University, Department of Mathematics Topology seminar. New York, NY, March 2001.

State University of New York, Department of Mathematics Geometry seminar. Stony Brook, NY, March 2001.

Professional Services

Journal Reviewer: Science. Nature. Cognition. Trends in Cognitive Science. Cognitive Science. Cognitive Psychology. Child Development. Memory and Cognition. Journal of Mathematical Psychology. Cognitive Processing. Journal of Experimental Psychology: Learning, Memory, & Cognition. Journal of Experimental Psychology: General. Philosophical Transactions A. American Journal of Psychology. Cerebral Cortex. Decision. Natural Language Semantics.

Conference Proceedings Reviewer (selected): Cognitive Science. Neural Information Processing Systems. Society for Philosophy and Psychology. Uncertainty in Artificial Intelligence.

Grant reviewer: NSF (ad-hoc and panelist).

Program committee: Cognitive Science Society, 2014, 2015, 2016.

Co-Organizer: European Summer School of Logic Language and Information, workshop "Formal and Experimental Pragmatics". Tubingen, August 2014.

Organizer: Stanford Pragmatics and Social Cognition Workshop, March 2013.

Co-Organizer: NIPS workshop on Probabilistic Programming, December 2012.

Area chair: NIPS 2011. Granada, Spain, December 2011.

Co-Organizer: IPAM summer school "Probabilistic Models of Cognition". Los Angeles, CA, July 2011.

Organizer: workshop "Probabilistic Programming in AI". Los Altos, CA, January 2010.

Co-Organizer: NIPS workshop "Bounded-rational analyses of human cognition: Bayesian models, approximate inference, and the brain". Whistler, BC, December 2009.

Program committee: International Workshop on Statistical Relational Learning. Leuven, Belgium, July 2009.

Co-Organizer: Cognitive Science Society, workshop "Intuitive pedagogical reasoning: an interdisciplinary workshop". Amsterdam, Netherlands, August 2009.

Co-Organizer: Annual Summer Interdisciplinary Conference, symposium "Bayesian models in psychology". Valle 'Aosta, Italy, July 2009.

Co-Organizer: Eastern Psychology Association, workshop "Social routes to causal knowledge: action, imitation, and pedagogy". Boston, MA, March 2008.

Co-Organizer: McDonnell Foundation workshop "Explanation and prior knowledge". Cambridge, MA, November 2006.

Mentor (1999-2001), Canada/USA Mathcamp.

Co-Organizer and Coordinator of Hiring, Canada/USA Mathcamp 2000, 2001.

Outreach

Guest lecturer, SAILORS program, Stanford, 2015.

Studium Generale, Groningen, Netherlands, February 2014.

Visiting Lecturer (2006, 2008, 2010, 2011, 2014), Canada/USA Mathcamp.

Teaching

Summer Schools and Tutorials

"Probabilistic programming languages." European Summer School of Logic Language and Information. Tubingen, August 2014.

"Probability in semantics and pragmatics" (with D. Lassiter). European Summer School of Logic Language and Information. Dusseldorf, August 2013.

"Stochastic lambda calculus and its applications in cognitive science." (Invited course.) North-American Summer School of Logic, Language, and Information. Austin, TX, June 2012.

"Computational Cognitive Science: Probability, Programs, and the Mind." European Summer School of Logic Language and Information. Copenhagen, August 2010.

Tutorial on probabilistic models of cognition (with T. O'Donnell). Cornell University, October 2009.

IPAM Graduate Summer School: "Probabilistic Models of Cognition: The Mathematics of Mind", Los Angeles CA, July 2007. (3 lectures.)

University Courses

"Foundations of Cognition" (Psych 205). Stanford. Spring 2015.

"Probabilistic Models of Social Behavior and Affect" (Psych 241). Stanford. Spring 2014. (Co-taught with J. Zaki, M. Frank.)

"Computation and Cognition: the Probabilistic Approach" (Psych 204). Stanford. Winter 2011, Winter 2012, Autumn 2012, Autumn 2013, Spring 2015.

"Representations of Meaning" (Psych 236 c, Linguist 236). Stanford. Spring 2013.(Co-taught with C. Potts.)

"Introduction to Cognitive Science" (SymSys 100, Psych 34). Stanford. Spring 2012, Winter 2013, Winter 2014.

"Formal and Computational Approaches in Psychology and Cognitive Science" (Psych 239). Stanford. Spring 2011. (Co-taught with J. McClelland.)

Co-taught (with L. Schulz and C. Moore): "Perception, Conception, and Action: Grounding Thoughts in Experience (and Vice Versa)", MIT, Spring 2008.

Extensive experience teaching mathematics at all levels, 1997-2005. (Details by request.)

Advising

Post-doctoral students

Leon Bergen, 2016-present

Gregory Scontras, 2014-present

Judith Degen, 2013-present

Long Ouyang, 2015-present

Andreas Stuhmueller, 2015-present

Siddarth Narayanaswami 2013-15 (Now post-doc, Oxford University)

Daniel Ly, 2013-15

Daniel Lassiter, 2011-13 (Now assistant professor of Linguistics, Stanford University)

Joseph Austerweil, 2013 (Now assistant professor of Cognitive Science, Brown University)

Ph.D. students

Erin Bennett (Stanford, Psychology)

Robert X. D. Hawkins (Stanford, Psychology)

Michael Henry Tessler (Stanford, Psychology)

Desmond Ong (Stanford, Psychology)

Daniel Ritchie (Stanford, Computer Science)

Justine Kao (Stanford, Psychology)

Long Ouyang (Stanford, Psychology), completed 2015

Daniel Hawthorne (Stanford, Psychology), completed 2015

Andreas Stuhmueller (MIT, BCS), completed 2015

Ph.D. Committees

Ian Ballard (Stanford, Neuroscience)

Molly Lewis (Stanford, Psychology)

Leon Bergen (MIT, BCS), completed 2015

Lingfeng Yang (Stanford, Computer Science), completed 2015

Rahul Sharma (Stanford, Computer Science), completed 2015

Eric Schkufza (Stanford, Computer Science), completed 2015

Eric Miller (Stanford, Psychology), completed 2015

Tomer Ulman (MIT, BCS), completed 2014

Spence Green (Stanford, Computer Science), completed 2014

Ranjitha Kumar (Stanford, Computer Science), completed 2013

Yi-Ting Yeh (Stanford, Computer Science), completed 2013

Thomas Icard III (Stanford, Philosophy), completed 2013

Jerry Talton III (Stanford, Computer Science), completed 2012

Jeremy Glick (Stanford, Psychology), completed 2011

Daniel Sternberg (Stanford, Psychology), completed 2011

Steve Piantadosi (MIT, BCS), completed 2011

Timothy J. O'Donnell (Harvard, Psychology), completed 2011

Jerry Talton (Stanford, Computer Science), completed 2011

University Committees

Psychology Department, Colloquium Committee, 2014-2015.

Psychology Department, Cognitive Search Committee, 2014-2015.

Psychology Department, Curriculum Committee, 2014-2015.

Psychology Department, Colloquium Committee, 2013-2014.

Human Subjects Research IRB, 2013-2014.

Psychology Department, Colloquium Committee, 2012-2013.

Psychology Department, Graduate Admissions Committee, 2012-2013.

Psychology Department, Cognitive Search Committee, 2012-2013.

Psychology Department, Computer Committee, 2012-2013.

Psychology Department, Graduate Program Committee, 2011-2012.

Psychology Department, Graduate Admissions Committee, 2011-2012.

Psychology Department, Cognitive Search Committee, 2011-2012.

Psychology Department, Computer Committee, 2011-2012.

Psychology Department, Cognitive Search Committee, 2010-2011.

Miscellaneous:

Citizen of the USA.
Member Cognitive Science Society.
Member Psychonomic Society.