Jessica B. Hamrick · Curriculum Vitæ

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(Last updated: March 11, 2025)

Research Experience

Senior Staff Research Scientist — Nov 2024 – present
Staff Research Scientist — May 2021 – Nov 2024
Senior Research Scientist — May 2019 – May 2021
Research Scientist — November 2017 – April 2019
Google DeepMind

Graduate Student Researcher — August 2012 – October 2017
Computational Cognitive Science Lab, UC Berkeley

Research Scientist Intern — May 2016 – August 2016
Google DeepMind

Graduate Research Assistant — June 2011 – August 2012
Undergraduate Research Assistant — January 2010 – June 2011
Computational Cognitive Science Lab, MIT

Undergraduate Research Assistant — June 2008 – December 2009
Personal Robots Group, MIT Media Lab

Education

University of California, Berkeley — August 2012 – October 2017
Ph.D. in Psychology
Thesis: *Metareasoning and Mental Simulation*
Advised by: Thomas L. Griffiths

Massachusetts Institute of Technology — September 2011 – June 2012
M.Eng. in Electrical Engineering and Computer Science
Thesis: *Physical Reasoning in Complex Scenes is Sensitive to Mass*
Advised by: Joshua B. Tenenbaum

Massachusetts Institute of Technology — September 2007 – June 2012
B.S. in Computer Science and Engineering
Advised by: Gerald Jay Sussman

Selected Publications

- Walker, J., Vértes, E., Li, Y., Dulac-Arnold, G., Anand, A., Weber, T., & **Hamrick, J.** (2023). Investigating the role of model-based learning in exploration and transfer. In *Proceedings of the International Conference on Machine Learning (ICML 2023).*
- Anand, A., Walker, J., Li, Y., Vértes, E., Schrittwieser, J., Ozair, S., Weber, T., & **Hamrick, J.** (2022). Procedural generalization by planning with self-supervised world models. In *Proceedings of the International Conference on Learning Representations (ICLR 2022).*
- **Hamrick, J.**, Friesen, A., Behbahani, F., Guez, A., Viola, F., Witherspoon, S., Anthony, T., Buesing, L., Veličković, P., & Weber, T. (2021). On the role of planning in model-based deep rein-

forcement learning. In *Proceedings of the International Conference on Learning Representations (ICLR 2021).*

- **Hamrick, J.** & Mohamed, S. (2020). Levels of analysis for machine learning. In *Proceedings of the Workshop on Bridging AI and Cognitive Science at ICLR 2020.*
- **Hamrick, J.**, Bapst, V., Sanchez-Gonzalez, A., Pfaff, T., Weber, T., Buesing, L., & Battaglia, P. (2020). Combining Q-Learning and Search with Amortized Value Estimates. In *Proceedings of the International Conference on Learning Representations (ICLR 2020).*
- Bapst*, V., Sanchez-Gonzalez*, A., Doersch, C., Stachenfeld, K., Kohli, P., Battaglia, P. W., & **Hamrick, J. B.** (2019). Structured agents for physical construction. In *Proceedings of the International Conference of Machine Learning (ICML 2019).*
- Battaglia, P. W., **Hamrick, J. B.**, Bapst, V., Sanchez-Gonzalez, A., Zambaldi, V., Malinowski, M., Tacchetti, A., Raposo, D., Santoro, A., Faulkner, R., Gulcehre, C., Song, F., Ballard, A., Gilmer, J., Dahl, G., Vaswani, A., Allen, K., Nash, C., Langston, V., Dyer, C., Heess, N., Wierstra, D., Kohli, P., Botvinick, M., Vinyals, O., Li, Y., & Pascanu, R. (2018). Relational inductive biases, deep learning, and graph networks. *arXiv preprint arXiv:1806.01261.*

Publications

- Smith, K., **Hamrick, J.**, Sanborn, A., Battaglia, P., Gerstenberg, T., Ullman, T., & Tenenbaum, J. (2024). Intuitive physics as probabilistic inference. In *Bayesian models of cognition: reverse engineering the mind* (Eds: Griffiths, T., Chater, N., & Tenenbaum, J.).
- Bounsi, W., Ibarz, B., Dudzik, A., **Hamrick, J.**, Markeeva, L., Vitvitskyi, A., Pascanu, R., Veličković, P. (2024). Transformers meet Neural Algorithmic Reasoners. In *CVPR 2024 Multimodal Algorithmic Reasoning (MAR) Workshop.*
- Walker, J., Vértes, E., Li, Y., Dulac-Arnold, G., Anand, A., Weber, T., & **Hamrick, J.** (2023). Investigating the role of model-based learning in exploration and transfer. In *Proceedings of the International Conference on Machine Learning (ICML 2023).*
- Madjiheurem, S., Stachenfeld, K., Battaglia, P., & **Hamrick, J.** (2023). Beyond Temporal Credit Assignment in Reinforcement Learning. In *Reincarnating Reinforcement Learning Workshop at ICLR 2023.*
- Kosoy, E., Liu, A., Collins, J., Chan, D., **Hamrick, J.**, Ke, N., Huang, S., Kaufmann, B., Canny, J., & Gopnik, A. (2022). Learning causal overhypotheses through exploration in children and computational models. In *Proceedings of the Conference on Causal Learning and Reasoning.*
- Allen, K., Lopez-Guevara, T., Stachenfeld, K., Sanchez-Gonzalez, A., Battaglia, P., **Hamrick, J.**, & Pfaff, T. (2022). Inverse design for fluid-structure interactions using graph network simulators. In *Proceedings of the Conference on Neural Information Processing Systems (NeurIPS 2022).*
- Anand, A., Walker, J., Li, Y., Vértes, E., Schrittwieser, J., Ozair, S., Weber, T., & **Hamrick, J.** (2022). Procedural generalization by planning with self-supervised world models. In *Proceedings of the International Conference on Learning Representations (ICLR 2022).*
- **Hamrick, J.**, Friesen, A., Behbahani, F., Guez, A., Viola, F., Witherspoon, S., Anthony, T., Buesing, L., Veličković, P., & Weber, T. (2021). On the role of planning in model-based deep reinforcement learning. In *Proceedings of the International Conference on Learning Representations (ICLR 2021).*
- Kosoy, E., Collins, J., Chan, D., Huang, S., Pathak, D., Agrawal, P., Canny, J., Gopnik, A., & **Hamrick, J.** Exploring exploration: Comparing children with rl agents in unified environments. In *Proceedings of the Workshop on Bridging AI and Cognitive Science at ICLR 2020.*

- **Hamrick, J.** & Mohamed, S. (2020). Levels of analysis for machine learning. In *Proceedings of the Workshop on Bridging AI and Cognitive Science at ICLR 2020.*
- **Hamrick, J.**, Bapst, V., Sanchez-Gonzalez, A., Pfaff, T., Weber, T., Buesing, L., & Battaglia, P. (2020). Combining Q-Learning and Search with Amortized Value Estimates. In *Proceedings of the International Conference on Learning Representations (ICLR 2020).*
- Parascandolo, G., Buesing, L., Merel, J., Hasenclever, L., Aslanides, J., **Hamrick, J.**, Heess, N., Neitz, A., & Weber, T. (2020). Divide-and-conquer monte carlo tree search for goal-directed planning. *arXiv preprint arXiv:2004.11410.*
- **Hamrick, J. B.** (2019). Analogues of mental simulation and imagination in deep learning. *Current Opinion in Behavioral Sciences*, 29, 8–16.
- Project Jupyter, Blank, B., Bourgin, D., Brown, A., Bussonnier, M., Frederic, J., Granger, B., Griffiths, T. L., **Hamrick, J. B.**, Kelley, K., Pacer, M, Page, L., Pérez, F., Ragan-Kelley, B., Suchow, J. W., & Willing, C. (2019). nbgrader: A Tool for Creating and Grading Assignments in the Jupyter Notebook. *Journal of Open Source Education*, 2(11), 32.
- Bapst, V., Sanchez-Gonzalez, A., Shams, O., Stachenfeld, K., Battaglia, P., Singh, S., & **Hamrick, J.** (2019). Object-oriented state editing for HRL. In *Perception as Generative Reasoning Workshop of the 33rd Conference on Neural Information Processing Systems (NeurIPS 2019).*
- Zhu, T., **Hamrick, J.**, McKee, K., Koster, R., Balaguer, J., Battaglia, P., & Botvinick, M. (2019). A resource-rational model of physical abstraction for efficient mental simulation. In *Proceedings of the 41st Annual Meeting of the Cognitive Science Society.*
- Bapst*, V., Sanchez-Gonzalez*, A., Doersch, C., Stachenfeld, K., Kohli, P., Battaglia, P. W., & **Hamrick, J. B.** (2019). Structured agents for physical construction. In *Proceedings of the International Conference of Machine Learning (ICML 2019).*
- Battaglia, P. W., **Hamrick, J. B.**, Bapst, V., Sanchez-Gonzalez, A., Zambaldi, V., Malinowski, M., Tacchetti, A., Raposo, D., Santoro, A., Faulkner, R., Gulcehre, C., Song, F., Ballard, A., Gilmer, J., Dahl, G., Vaswani, A., Allen, K., Nash, C., Langston, V., Dyer, C., Heess, N., Wierstra, D., Kohli, P., Botvinick, M., Vinyals, O., Li, Y., & Pascanu, R. (2018). Relational inductive biases, deep learning, and graph networks. *arXiv preprint arXiv:1806.01261.*
- **Hamrick*, J. B.**, Allen*, K. R., Bapst, V., Zhu, T., McKee, K. R., Tenenbaum, J. B., & Battaglia, P. W. (2018). Relational inductive bias for physical construction in humans and machines. In *Proceedings of the 40th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
- Fisac, J. F., Gates, M. A., **Hamrick, J. B.**, Liu, C., Hadfield-Menell, D., Palaniappan, M., Malik D., Sastry, S., Griffiths, T. L., & Dragan, A. D. (2017). Pragmatic-Pedagogic Value Alignment. In *Proceedings of the International Symposium on Robotics Research* (ISRR 2017). **Winner of the Computing Community Consortium Blue Sky Award**.
- **Hamrick, J. B.** (2017). Metareasoning and Mental Simulation. Ph.D. thesis.
- Callaway, F., **Hamrick, J. B.**, & Griffiths, T. L. (2017). Discovering simple heuristics from mental simulation. In *Proceedings of the 39th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
- **Hamrick, J. B.**, Ballard, A. J., Pascanu, R., Vinyals, O., Heess, N., & Battaglia, P. W. (2017). Metacontrol for Adaptive Imagination-Based Optimization. In *Proceedings of the 5th International Conference on Learning Representations (ICLR 2017).*
- **Hamrick, J. B.**, Battaglia, P. W., Griffiths, T. L., & Tenenbaum, J. B. (2016). Inferring mass in complex scenes by mental simulation. *Cognition*, 157, 61–76.

- **Hamrick, J. B.**, Pascanu, R., Vinyals, O., Ballard, A. J., Heess, N., & Battaglia, P. W. (2016). Imagination-Based Decision Making with Physical Models in Deep Neural Networks. In *Proceedings of the NeurIPS 2016 Workshop on Intuitive Physics.*
- Gureckis, T. M., Martin, J., McDonnell, J., Rich, A. S., Markant, D. B., Coenen, A., Halpern, D., **Hamrick, J. B.**, & Chan, P. (2016). psiTurk: An open-source framework for conducting replicable behavioral experiments online. *Behavioral Research Methods*, 48(3), 829–842.
- Fisac*, J. F., Liu*, C., **Hamrick*, J. B.**, Sastry, S., Hedrick, J. K., Griffiths, T. L., & Dragan, A. D. (2016). Generating plans that predict themselves. In *Proceedings of the 12th International Workshop on the Algorithmic Foundations of Robotics (WAFR 2016).*
- Liu*, C., **Hamrick*, J. B.**, Fisac*, J. F., Dragan, A. D., Hedrick, J. K., Sastry, S. S., & Griffiths, T. L. (2016). Goal Inference Improves Objective and Perceived Performance in Human-Robot Collaboration. In J. Thangarajah, K. Tuyls, C. Jonker, & S. Marsella (Eds.), *Proceedings of the 15th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2016).*
- Kluyver, T., Ragan-Kelley, B., Pérez, F., Granger, B., Bussonnier, M., Frederic, J., Kelley, K., **Hamrick, J. B.**, Grout, J., Corlay, S., Ivanov, P., Avila, D., Abdalla, S., & Willing, C. (2016). Jupyter Notebooks—a publishing format for reproducible computational workflows. In *Proceedings of the 20th International Conference on Electronic Publishing*, 87–90.
- **Hamrick, J. B.** (2016). A Rejection Sampler. In M. DiBernardo & A. Brown (Eds.), *The Architecture of Open Source Applications, Volume 4: 500 Lines or Less.*
- **Hamrick, J. B.**, Smith, K. A., Griffiths, T. L., & Vul, E. (2015). Think again? The amount of mental simulation tracks uncertainty in the outcome. In *Proceedings of the 37th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
- Goodman, N. D., Frank, M. C., Griffiths, T. L., Tenenbaum, J. B., Battaglia, P. W., & **Hamrick, J. B.** (2015). Relevant and robust: A response to Marcus & Davis (2013). *Psychological Science*, 26(4), 539—541.
- Lieder, F., Plunkett, D., **Hamrick, J. B.**, Russell, S. J., Hay, N. J., & Griffiths, T. L. (2014). Algorithm selection by rational metareasoning as a model of human strategy selection. *Advances in Neural Information Processing Systems*, 27.
- **Hamrick J. B.** & Griffiths T. L. (2014). What to simulate? Inferring the right direction for mental rotation. In P. Bello, M. Guarini, M. McShane & B. Scassellati (Eds.), *Proceedings of the 36th Annual Meeting of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
- Battaglia P. W., **Hamrick J. B.**, & Tenenbaum J. B. (2013). Simulation as an engine of physical scene understanding. *Proceedings of the National Academy of Sciences*, 110(45), 18327–18332.
- **Hamrick J. B.** & Griffiths T. L. (2013). Mental Rotation as Bayesian Quadrature. In *NeurIPS Bayesian Optimization Workshop.*
- Abbott J. T., **Hamrick J. B.**, & Griffiths T. L. (2013). Approximating Bayesian inference with a sparse distributed memory system. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
- **Hamrick, J. B.** (2012). Physical Reasoning in Complex Scenes is Sensitive to Mass. Master's thesis.
- **Hamrick J. B.**, Battaglia P. W., & Tenenbaum J. B. (2011). Internal physics models guide probabilistic judgments about object dynamics. In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.

*Contributed equally.

Fellowships, Grants, and Awards

- 2017 ACM Software System Award for Project Jupyter. Awarded May 2018.
- 2015–2016 Outstanding Graduate Student Instructor Award. Awarded March 2016.
- Cognitive Science Society Student Travel Grant. Awarded July 2015. *Based on merit.*
- National Science Foundation Graduate Fellowship (three years, 2014–2017), tuition and stipend. Awarded April 2013.
- Berkeley Fellowship, University of California Berkeley (two years, 2012–2014), tuition and stipend. Awarded March 2012. *Berkeley's most prestigious fellowship awarded to incoming graduate students, based on merit.*

Selected Presentations

- Hamrick, J. (2024, October). Planning, reasoning, and generalisation in deep learning. Talk presented at the Royal Society meeting titled "Beyond the symbols vs signals debate".
- Hamrick, J. (2022, August). On the Role of Planning in Model-Based Deep Reinforcement Learning. Talk presented for the CCN GAC titled "What is the place of planning?".
- Hamrick, J. (2021, April). Mental Simulation, Imagination, and Model-Based Deep RL. NYU CNS Swartz Seminar Series.
- Hamrick, J. & Mordatch, I. (2020, July). Model-Based Reinforcement Learning. Tutorial presented at ICML 2020.

Presentations

- Hamrick, J. (2024, October). Planning, reasoning, and generalisation in deep learning. Talk presented at the Royal Society meeting titled "Beyond the symbols vs signals debate".
- Hamrick, J. (2023, June). Understanding and Improving Model-Based Deep Reinforcement Learning. Talk presented in the Mind & Machine Seminar series, University of Bristol.
- Hamrick, J. (2023, February). Understanding and Improving Model-Based Deep Reinforcement Learning. Talk presented in the Imperial College London ICARL Seminar Series.
- Hamrick, J. (2022, August). On the Role of Planning in Model-Based Deep Reinforcement Learning. Talk presented for the CCN GAC titled "What is the place of planning?".
- Hamrick, J. (2021, September). Mental Simulation, Imagination, and Model-Based Deep RL. Talk presented in the RLDM Seminar Series at Max Planck Institute for Biological Cybernetics, Tübingen.
- Hamrick, J. (2021, July). Model-Based Deep Reinforcement Learning. Talk presented at the CogSci Workshop on Symbolic and Sub-Symbolic Systems in People and Machines.
- Hamrick, J. (2021, June). Mental Simulation, Imagination, and Model-Based Deep RL. Talk presented at the MILA Tea Talk series.
- Hamrick, J. (2021, June). On the role of planning in model-based deep reinforcement learning. Talk presented to the Mu Lab, Queen's University.
- Hamrick, J. (2021, May). Mental Simulation, Imagination, and Model-Based Deep RL. Talk presented to UCL DARK.
- Hamrick, J. (2021, April). Mental Simulation, Imagination, and Model-Based Deep RL. NYU CNS Swartz Seminar Series.

- Hamrick, J. (2021, March). Mental Simulation, Imagination, and Model-Based Deep RL. Talk presented to the UC Irvine Cognitive Science Colloquium.
- Hamrick, J. (2021, January). Structured agents for object-centric reasoning. Talk presented at the Flatiron Computational Methods and Data Science Journal Club.
- Hamrick, J. (2020, December). Structured agents for object-centric reasoning. Talk presented at the Workshop on Object Representations for Learning and Reasoning, NeurIPS 2020.
- Hamrick, J. (2020, December). Structured Computation and Representation in Deep Reinforcement Learning. Talk presented at the Workshop on Interpretable Inductive Biases and Physically Structured Learning at NeurIPS 2020.
- Hamrick, J. (2020, November). What is a world model (and what is it good for)?. Talk presented in The Learning Salon.
- Hamrick, J. (2020, October). Mental Simulation, Imagination, and Model-Based Deep RL. Talk presented in the Computational Psychiatry Talk series, Max Planck UCL Centre.
- Hamrick, J. (2020, September). Mental Simulation, Imagination, and Model-Based Deep RL. Talk presented at the University of Edinburgh.
- Hamrick, J. (2020, August). Structured Computation and Representation in Deep Reinforcement Learning. Talk presented to the School of AI Algiers.
- Hamrick, J. (2020, August). Model-Based Reinforcement Learning. Lecture presented at the CIFAR Deep Learning + Reinforcement Learning (DLRL) Summer School.
- Hamrick, J. & Mordatch, I. (2020, July). Model-Based Reinforcement Learning. Tutorial presented at ICML 2020.
- Hamrick, J. (2020, February). Mental Simulation, Imagination, and Model-Based Deep RL. Talk presented at the Generalisation in Mind and Machine series, University of Bristol. Bristol, UK.
- Hamrick, J. (2019, October). Introduction to Reinforcement Learning. Guest lecture presented in Introduction to Computational Cognitive Science, Johns Hopkins University. Baltimore, Maryland, USA.
- Hamrick, J. (2019, July). Mental Simulation, Imagination, and Model-Based Deep RL. Lecture presented at the Diverse Intelligences Summer Institute. St. Andrews, Scotland, UK.
- Hamrick, J. (2019, July). Resource-Rational Mental Simulation (in both humans and machines!). Talk presented at the Workshop on Heuristics, Hacks, and Habits, CogSci 2019. Montreal, Canada.
- Bapst*, V., Sanchez-Gonzalez*, A., Doersch, C., Stachenfeld, K., Kohli, P., Battaglia, P. W., & Hamrick, J. (2019, July). Structured agents for physical construction. Talk and poster presented at ICML 2019. Long Beach, CA, USA.
- Hamrick, J. (2019, June). Mental Simulation, Imagination, and Model-Based Deep RL. Talk presented at the Workshop on Generative Modeling and Model-Based Reasoning for Robotics and AI, ICML 2019. Long Beach, CA, USA.
- Hamrick, J. (2019, May). nbgrader: A Tool for Creating and Grading Assignments in the Jupyter Notebook. Talk presented at the nbgrader Jupyter Community Workshop. Edinburgh, UK.
- Hamrick, J. (2019, May). Construction as the manipulation of structure. Presented at the Workshop on Representation Learning for Graphs and Manifolds, ICLR 2019. New Orleans, LA, USA.
- Hamrick, J. (2019, May). Structured Computation and Representation in Deep Reinforcement Learning. Presented at the Workshop on Structured Prediction meets Deep Reinforcement Learning, ICLR 2019. New Orleans, LA, USA.

- Hamrick, J. (2019, April). Relational inductive bias, deep learning, and graph networks. Linear Accelerator Laboratory (LAL) Seminar Series. Paris, France.
- Hamrick, J. (2019, April). Mental simulation, imagination, and model-based deep RL. Lecture for Stanford CS379. Palo Alto, CA.
- Hamrick, J. (2018, October). nbgrader: A Tool for Creating and Grading Assignments in the Jupyter Notebook. Talk presented at PyData Paris. Paris, France.
- Hamrick, J. (2018, July). Meta-reasoning for adaptive physical strategy selection and control. Presented at the Symposium for Strategies and Representations in Physical Inference, CogSci 2018. Madison, WI, USA.
- Hamrick*, J. B., Allen*, K. R., Bapst, V., Zhu, T., McKee, K. R., Tenenbaum, J. B., & Battaglia, P. W. (2018, July). Relational inductive bias for physical construction in humans and machines. Poster presented at the 40th Annual Conference of the Cognitive Science Society. Madison, WI, USA.
- Hamrick, J. (2018, July). Structured Computation and Representation in Deep Reinforcement Learning. Presented at the Workshop on Prediction and Generative Modeling in Reinforcement Learning, ICML 2018. Stockholm, Sweden.
- Hamrick, J. (2018, March). Metareasoning and mental simulation in humans and artificial agents. Presented at the Workshop on Model-Based Cognition: Hierarchical Reasoning and Sequential Planning, COSYNE 2018. Breckenridge, CO, USA.
- Pacer, M, Avila, D., & Hamrick, J. (2017, August). The Jupyter notebook as document: from structure to application. Talk presented at JupyterCon 2017. New York, NY, USA.
- Hamrick, J., Bourgin, D., Langlois, T., & Griffiths, T. L. (2017, July). Exploring inductive bias of visual scenes. Poster presented at the 39th Annual Conference of the Cognitive Science Society. London, UK.
- Hamrick, J. (2017, July). Metacontrol for Adaptive Imagination-Based Optimization. Presented at the Workshop on Deep Learning in Computational Cognitive Science, CogSci 2017. London, UK.
- Hamrick, J. (2017, July). Think again? Adaptive allocation of resources for mental simulation. Presented at the Symposium on Bridging Levels of Analysis with Rational Process Models, MathPsych 2017. Coventry, UK.
- Hamrick, J., Bussonnier, M., Frederic, J., Granger, B., Page, L., & Willing., C. (2017, July). nbgrader: A Tool for Creating and Grading Assignments in the Jupyter Notebook. Talk presented at SciPy 2017. Austin, TX, USA.
- Hamrick, J., Ballard, A. J., Pascanu, R., Vinyals, O., Heess, N., & Battaglia, P. W. (2017, April). Metacontrol for Adaptive Imagination-Based Optimization. Poster presented at the 5th International Conference on Learning Representations (ICLR 2017). Toulon, France.
- Hamrick, J., Pascanu, R., Vinyals, O., Ballard, A. J., Heess, N., & Battaglia, P. W. (2016, December). Imagination-Based Decision Making with Physical Models in Deep Neural Networks. Talk and poster presented at the NeurIPS 2016 Workshop on Intuitive Physics. Barcelona, Spain.
- Hamrick, J. and Griffiths, T. L. (2016, December). Metareasoning and mental simulation. Poster presented at the 11th Women in Machine Learning Workshop (WiML 2016). Barcelona, Spain.
- Hamrick, J. (2016, October). Metareasoning and mental simulation. Stanford University. Palo Alto, CA, USA.

- Suchow, J. W., Morgan, T. J. H., Hamrick, J., Pacer, M. D., Meylan, S. C., & Griffiths, T. L. (2016, August). Wallace: Automating Cultural Evolution Experiments Through Crowdsourcing. Tutorial presented at the 38th Annual Conference of the Cognitive Science Society. Philadelphia, PA, USA.
- Hamrick, J. (2016, July). Reproducible, One-Button Workflows with the Jupyter Notebook and SCons. Talk presented at SciPy 2016. Austin, TX, USA.
- Liu, C., Hamrick, J., Fisac, J. F., Dragan, A. D., Hedrick, J. K., Sastry, S. S., & Griffiths, T. L. (2016, May). Goal Inference Improves Objective and Perceived Performance in Human-Robot Collaboration. Poster presented at AAMAS 2016. Singapore.
- Hamrick, J. (2016, March). Creating and Grading Assignments in the IPython/Jupyter Notebook with nbgrader. Demo presented at SIGCSE 2016. Memphis, TN, USA.
- Hamrick, J. (2015, December). Think again? Bounded optimality in decisions from internally generated evidence. Presented at the Bounded Optimality and Rational Metareasoning Workshop, NeurIPS 2015. Montreal, Canada.
- Hamrick, J. (2015, November). Teaching with Jupyter Notebooks. Presented at CodeNeuro 2015. San Francisco, CA, USA.
- Hamrick, J. (2015, November). Mental Simulation in Humans and Robots. Presented at the Algorithms for Human-Robot Interaction Workshop. Berkeley, CA, USA.
- Hamrick, J., Smith, K. A., Griffiths, T. L., & Vul, E. (2015, July). Think again? The amount of mental simulation tracks uncertainty in the outcome. Talk presented at the 37th Annual Conference of the Cognitive Science Society. Pasadena, CA, USA.
- Hamrick, J., Ragan-Kelley, M., & Kelley, K. (2015, July). Teaching with IPython/ Jupyter Notebooks and JupyterHub. Talk presented at SciPy 2015. Austin, TX, USA.
- Hamrick, J. & Griffiths, T. L. (2014, August). What to simulate? Inferring the right direction for mental rotation. Talk presented at the 36th Annual Conference of the Cognitive Science Society. Quebec City, Canada.
- Hamrick, J. & Battaglia, P. W. (2014, April). Games for Science: Creating interactive psychology experiments in Python with Panda3D. Talk presented at PyCon 2014. Montreal, Canada.
- Hamrick, J. & Griffiths, T. L. (2013, December). Mental Rotation as Bayesian Quadrature. Poster presented at the NeurIPS Bayesian Optimization Workshop.
- Hamrick, J. (2013, November). Rewriting Python Docstrings with a Metaclass. Talk presented at the San Francisco Python Meetup.
- Hamrick, J., Battaglia P. W., Griffiths T. L, & Tenenbaum J. B. (2013, August). Inferring mass in complex physical scenes via probabilistic simulation. Talk presented at the 46th Annual Meeting of the Society of Mathematical Psychology. Potsdam, Germany.
- Hamrick, J., Battaglia P. W., Griffiths T. L, & Tenenbaum J. B. (2013, August). Inferring mass in complex physical scenes via probabilistic simulation. Poster presented at the 35th Annual Conference of the Cognitive Science Society. Berlin, Germany.
- Battaglia P. W., Hamrick, J., & Tenenbaum J. B. (2012, May). Intuitive mechanics in visual reasoning about complex scenes with unknown forces. Poster presented by Peter Battaglia at Annual Meeting of the Vision Sciences Society. Naples, FL, USA.
- Hamrick, J., Battaglia P. W., & Tenenbaum J. B. (2012, May). Physics knowledge aids object perception in dynamic scenes. Poster presented at the Annual Meeting of the Vision Sciences Society. Naples, FL, USA.

- Hamrick, J., Battaglia P. W., & Tenenbaum J. B. (2011, July). Internal physics models guide probabilistic judgments about object dynamics. Paper presented at the 33rd Annual Conference of the Cognitive Science Society. Boston, MA, USA.
- Battaglia P. W., Hamrick, J., & Tenenbaum J. B. (2011, May). Intuitive physics judgments guided by probabilistic dynamics model. Poster presented by Peter Battaglia at the Annual Meeting of the Vision Sciences Society. Naples, FL, USA.

Service

- Reviewing
  - Area Chair: ICLR, ICML, NeurIPS
  - Reviewer: CogSci, NeurIPS, ICLR, ICML, *Cognitive Science*
- PhD Examiner
  - Thomas Moerland, *The Intersection of Planning and Learning*, 2021
  - Thomas Pierrot, *Exploiting inductive biases in reinforcement learning*, 2021
- Workshop Organizing
  - *Bridging AI and Cognitive Science*, ICLR 2020
  - *Object-Oriented Learning*, ICML 2020
  - *Graph Representation Learning and Beyond*, ICML 2020
  - *Modeling the Physical World: Learning, Perception, and Control*, NeurIPS 2018
- Mentoring
  - Deep Learning Indaba
  - DeepMind Scholars Mentorship Program

Teaching

- Introduction to Computational Cognitive Science (October 2019, Johns Hopkins University).
  Guest lecture, *Introduction to Reinforcement Learning*
- Berkeley Review of CogSci Articles (September 14, 2016, UC Berkeley)
  `http://www.decal.org/courses/4179`
  Guest lecturer.
- COGSCI 88: Data Science and the Mind (November 24, 2015, UC Berkeley)
  `http://data8.org/connector/mind/`
  Guest lecturer.
- Software Carpentry (July 6-7, 2015, Austin, TX)
  `http://software-carpentry.org/`
  Instructor for a boot camp teaching computer skills to scientists at the SciPy 2015 conference, including Python programming, Git version control, the command line, and various scientific Python libraries.
- COGSCI 131: Computational Models of Cognition (Spring 2015, UC Berkeley)
  `http://www.jesshamrick.com/2014/03/24/deploying-jupyterhub-for-education`
  Graduate student instructor. Spearheaded an effort to convert assignments from MATLAB to IPython notebooks and maintained a deployment of JupyterHub for the 220 students to work on their IPython notebook assignments.

- Berkeley Review of CogSci Articles (October 15, 2014, UC Berkeley)
  `http://www.decal.org/courses/3192`
  Guest lecturer.
- Software Carpentry (September 22-23, 2014, Berkeley, CA)
  `http://software-carpentry.org/`
  Instructor for a boot camp teaching computer skills to scientists at the Lawrence Berkeley National Laboratory, including Python programming, Git version control, the command line, and data processing.
- Software Carpentry (April 14-15, 2014, Montreal, Canada)
  `http://software-carpentry.org/`
  Instructor for a boot camp teaching computer skills to librarians, including Python programming, Git version control, the command line, and data processing.
- COGSCI 131: Computational Models of Cognition (Spring 2014, UC Berkeley)
  Graduate student instructor.
- Berkeley Review of CogSci Articles (October 16, 2013, UC Berkeley)
  `http://www.decal.org/courses/2827`
  Guest lecturer.
- Python FUNdamentals (August 19-22, 2013, UC Berkeley)
  `https://github.com/dlab-berkeley/python-fundamentals`
  Helper for a crash course teaching introductory Python to graduate students.
- Software Carpentry (April 13-14, 2013, UC Berkeley)
  `http://software-carpentry.org/`
  Helper for a boot camp teaching scientists computer skills in Python programming, Git version control, testing, the command line, and data management.
- Python for Computational Cognitive Science (Summer 2012, MIT).
  `https://github.com/jhamrick/python-course`
  Co-instructor for a crash course in scientific Python for computational cognitive science.
- Boston Python Workshop (May, July, and December 2011, Boston, MA)
  `http://openhatch.org/wiki/Boston_Python_Workshop`
  Helper for workshops teaching Python to women and their friends.

Selected Open-Source Projects

For a full list, see `https://github.com/jhamrick?tab=repositories`.

- nbgrader (creator)
  `https://github.com/jupyter/nbgrader`
  A tool to help instructors create, distribute, collect, and grade assignments in the Jupyter/IPython notebook.
- Jupyter/IPython
  `http://jupyter.org/`
  An architecture for interactive computing.
- nbflow (creator)
  `https://github.com/jhamrick/nbflow`
  A tool that supports one-button reproducible workflows with the Jupyter/IPython Notebook and Scons.

- Wallace
  `https://github.com/berkeley-cocosci/Wallace`
  A platform for running iterated learning experiments on Amazon's Mechanical Turk.
- psiTurk
  `https://github.com/NYUCCL/psiTurk`
  A platform for running psychological experiments on Amazon's Mechanical Turk.
- Gaussian Process and Bayesian Quadrature libraries for Python (creator)
  `https://github.com/jhamrick/bayesian-quadrature`
  `http://github.com/jhamrick/gaussian_processes`
  While other Python implementations of Gaussian processes exist, this library is specifically designed to expose the underlying math (e.g., log-likelihoods, derivatives of the log-likelihood, etc.).