

# Mark K Ho

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## Employment

**University of California Berkeley** - Berkeley, CA

*Postdoctoral Scholar*

January 2018 - Current

## Education

**Brown University** - Providence, RI

Ph.D., Cognitive Science 2018

Dissertation Committee: Joseph L. Austerweil, Ph.D. (Chair), Michael Frank, Ph.D.,  
Fiery Cushman Ph.D., Michael L. Littman, Ph.D.

Sc.M., Computer Science 2015

Track: Machine Learning and Artificial Intelligence

Advisor: Michael L. Littman, Ph.D.

Thesis Title: *Teaching Agents with Evaluative Feedback: Communication versus Reward*

Sc.M., Cognitive Science 2014

**Princeton University** - Princeton, NJ

A.B. *Magna Cum Laude*, Philosophy 2011

Minors: Computer Science; Values and Public Life

Thesis Committee: Gilbert Harman, Ph.D., Alexander Nehamas, Ph.D.

**Bronx High School of Science** - Bronx, NY 2007

## Awards and Fellowships

**National Science Foundation Graduate Research Fellowship** 2014-2019

**Brown University Open Graduate Education Fellowship** 2014-2015

**Professor Lorrin A. Riggs Graduate Student Dissertation Fellowship** 2017

**NIPS Conference Student Travel Award** Fall 2016

Indiana U. and NSF Young Scientist Travel Award	Summer 2016
Peter D. Eimas Graduate Research Award	2016-2017
Brown University Conference Travel Award	Summer 2015
Betty R.H. and James M. Pickett Fellowship	2012-2013

## Papers

Ho, M. K., Littman, M. L., Cushman, F., & Austerweil, J. L. (2018). Effectively learning from pedagogical demonstrations. In C. Kalish, M. Rau, T. Rogers, & J. Zhu (Eds.), *Proceedings of the 40th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.

Ho, M. K., Littman, M. L. & Austerweil, J. L. (2017). Teaching by Intervention: Working Backwards, Undoing Mistakes, or Correcting Mistakes? In *Proceedings of the 39th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.

Ho, M. K., Littman, M. L., Cushman, F. & Austerweil, J. L. (under review). Teachers use Rewards and Punishments Communicatively, not as Reinforcement.

Ho, M. K., MacGlashan, J., Littman, M. L., & Cushman, F. (2017). Social is special: A normative framework for teaching with and learning from evaluative feedback. *Cognition*.  
<https://doi.org/10.1016/j.cognition.2017.03.006>

MacGlashan, J., **Ho, M. K.**, Loftin, R. T., Peng, B., Roberts, D. L., Taylor, M. E., & Littman, M. L. (2017). Interactive Learning from Policy-Dependent Human Feedback. Paper presented at the *Proceedings of the 34th International Conference on Machine Learning (ICML)*.

Ho, M. K., Littman, M., MacGlashan, J., Cushman, F., & Austerweil, J. L. (2016). Showing versus doing: Teaching by demonstration. In D. D. Lee, M. Sugiyama, U. V. Luxburg, I. Guyon, & R. Garnett (Eds.), *Advances in Neural Information Processing Systems 29* (pp. 3027-3035).

**\*\*Selected for oral presentation\*\***

Ho, M. K., MacGlashan, J., Greenwald, A., Littman, M. L., Hilliard, E. M., Trimbach, C., Brawner, S., Tenenbaum, J. B., Kleiman-Weiner, M., & Austerweil, J. L. (2016). Feature-based joint planning and norm learning in collaborative games. In *Proceedings of the 38th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.

Kleiman-Weiner, M., **Ho, M. K.**, Austerweil, J. L., Littman, M. L., & Tenenbaum, J. B. (2016). Coordinate to cooperate or compete: Abstract goals and joint intentions in social interaction. In *Proceedings of the 38th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.

Ho, M. K., Littman, M. L., Cushman, F. & Austerweil, J. L. (2015). Teaching with rewards and punishments: Reinforcement or communication?. In D. C. Noelle and R. Dale and A. S. Warlaumont and J. Yoshimi and T. Matlock and C. D. Jennings and P. P. Maglio (Eds.), *Proceedings of the 37th Annual Meeting of the Cognitive Science Society* (p. 920-925). Austin, TX: Cognitive Science Society.

## Posters

Ho, M. K., Littman, M., MacGlashan, J., Cushman, F., & Austerweil, J. L. (2017, Sept.) Showing versus Doing: Teaching by Demonstration. Poster presented at the Inaugural Conference on Cognitive Computational Neuroscience, New York City, New York.

Kleiman-Weiner, M., **Ho, M. K.**, Austerweil, J. L., Littman, M. L., & Tenenbaum, J. (2017, June). Learning to Cooperate and Compete. Poster presented at the Reinforcement Learning and Decision Making conference, Ann Arbor, Michigan, USA. **\*\*Best paper award\*\***

Ho, M. K., Littman, M. L., MacGlashan J., Cushman F., & Austerweil J. L.. (2017, March). Human Teaching by Demonstration: Showing versus Doing Reinforcement Learning Tasks. Poster and talk presented at the 11th Annual Machine Learning Symposium of the New York Academy of Sciences, New York City, New York. **\*\*Top presentation award\*\***

Ho, M. K., Littman, M.L., Cushman, F. & Austerweil, J. L. (2016, January). Generous Teachers: Evaluative Feedback as Communication. Poster presented at the Annual meeting of the Society for Personality and Social Psychology, San Diego, California.

Ho, M. K., Littman, M. L., Cushman, F. & Austerweil, J. L. (2015, June). Evaluative Feedback: Reinforcement or Communication? Poster selected for a 2 minute spotlight Ódata blitzÓ and presented at the Reinforcement Learning and Decision Making conference, Edmonton, Alberta, Canada.

Ho, M. K. & Cushman, F. (2013, August). Modeling Social Learning and Working Memory Use. Poster presented at the 35th Annual Conference of the Cognitive Science Society. Berlin, Germany.

## Talks and Symposia

Ho, M. K. (2017, May). "How People Intentionally Teach Agents in Interactive Settings." DREAM Seminar, University of California, Berkeley.

Ho, M. K. (2017, April). "Teaching with Communicative Intent in Interactive Settings." Computational Cognitive Science Group Meeting, MIT.

Ho, M.K. (2017, April). "Teaching by Demonstration: Showing vs. Doing." Brown Robotics Group Meeting, Brown University.

Ho, M. K., Littman, M. L., Cushman, F., & Austerweil, J. L. (2016, August). "Not Quite Intuitive Behaviorists: Teachers use Rewards and Punishments Communicatively and not as Reinforcement." Abstract presented at the 49th Annual Meeting of the of the Society for Mathematical Psychology, New Brunswick, NJ.

Ho, M. K. (2016, July). "Teaching with Evaluative Feedback (and by Demonstration), Communicatively." Moral Psychology Research Lab, Harvard University.

Ho, M. K. (2016, May). "Teachers use rewards and punishments communicatively and not as reinforcement" presentation given to HAMLET (Human and Machine Learning: Experiments and Theory) seminar series at University of Wisconsin, Madison.

Austerweil, J. L., Brawner, S., Greenwald, A., Hilliard, E., Ho, M. K., Littman, M. L., MacGlashan, J., & Trimbach, C. (2016, March). "The Impact of Outcome Preferences in a Collection of Non-Zero-Sum Grid Games." AAAI Spring Symposium 2016 on Challenges and Opportunities in Multiagent Learning for the Real World.

Ho, M. K. (2015, September). Organized and facilitated the 1st annual Brown CLPS Research Blitz in departmental Cognitive Seminar series.

Ho, M. K., Fernbach, P.M & Sloman, S. A. (2015, May). "Opening minds by exposing the illusion of explanatory depth." Talk given at the annual meeting of the Association for Psychological Science, New York, NY.

Ho, M. K. (2015, March). "Teaching with Punishment and Reward" presentation given to Cognition Seminar at Brown University.

Ho, M. (2013, July). "Causal Self-Deception". 5-minute data blitz presentation given at the Moral Psychology Research Group annual meeting.

Ho, M. K. & Sloman, S. A. (2013, October). "Causes and Reasons in Self-Deception". First-Year Project Oral Presentation given to the CLPS Dept., Brown University.

## Workshops

Mathewson, K., Subramanian, K., Ho, M. K., Loftin, R., Austerweil, J.L., Harutyunyan, A., Precup, D., El Asri, L., Gombolay, M., Zhu, X., Chernova, S., Isbell, C. L., Pilarski, P. M., Wong, W. K., Veloso, M., Shah, J.A., Taylor, M., Argall, B., & Littman, M. L. (2016) Future of Interactive Learning Machines. Workshop at the 30th Conference on Neural Information Processing Systems. Organizing Committee and Programming Committee member.

## Teaching Experience

**CLPS 0700** - Social Psychology, Brown University, Providence, RI Spring 2016  
*Teaching Assistant*

**Google igniteCS** - Nathan Bishop Middle School, Providence, RI 2014-2015  
*Teaching Assistant*

- Organized and taught basic coding and Computer Science classes at a local public middle school once a week.

**CLPS 1211** - Human and Machine Learning, Brown University, Providence, RI Fall 2015  
*Invited Guest Lecturer*

**CLPS 0900** - Quantitative Methods and Statistics, Brown University, Providence, RI Fall 2015  
*Teaching Assistant*

**CLPS 0020** - Introduction to Cognitive Science, Brown University, Providence, RI Fall 2013

### *Teaching Assistant*

**Princeton Student Volunteers Council - TEACH Program** - Trenton, NJ      Fall 2010 - Spring 2011  
*Volunteer Tutor*

- Tutored former prison inmates preparing for the GED (high school equivalency) exam.

## Service

Brown Cognition Seminar Series      Fall 2015 - Summer 2016  
*Organizer*

- Planned and organized weekly seminar series with invited speakers from other universities.

Brown Graduate School Diversity and Inclusion Advisory Board      2016 - 2018  
*Advisory Board Member*

Brown Cognitive, Linguistic, and Psychological Sciences Dept.      Spring 2016 - Fall 2017  
 Diversity Committee  
*Graduate Student Committee Member*

ALANA (African American, Latino/a, Asian/Asian American, Native American)      2014-2016  
 Mentorship Program at Brown University  
*Mentor*

## Skills

- General programming in Python, Java, and C
- Web-based programming in HTML, CSS, and JavaScript (client- and server-side)
- Experimental design
- Data analysis in Python, R, MATLAB, and SPSS

## Memberships

Cognitive Science Society

Society for Judgment and Decision-Making