Mark K. Ho

Stevens Institute of Technology
Department of Computer Science
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Employment

Stevens Institute of Technology - Hoboken, NJ — Fall 2023
Assistant Professor
Department of Computer Science

New York University - New York City, NY — 2022 - 2023
Faculty Fellow / Assistant Professor
Center for Data Science

Princeton University - Princeton, NJ — 2018 - 2022
University of California, Berkeley - Berkeley, CA
Postdoctoral Research Associate
Advisor: Prof. Thomas Griffiths

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.

M.S., Computer Science — 2015
Specialization: Machine Learning and Artificial Intelligence

Princeton University - Princeton, NJ
B.A. *Magna Cum Laude*, Philosophy — 2011
Minors: Computer Science; Values and Public Life

Bronx High School of Science - Bronx, NY — 2007

Awards and Fellowships

National Science Foundation Graduate Research Fellowship — 2014-2019

Diverse Intelligences Summer Institute Fellow — 2019

Brown University Open Graduate Education Fellowship — 2014-2015

Professor Lorrin A. Riggs Graduate Student Dissertation Fellowship — 2017

NeurIPS 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

Journal Articles

Ho, M. K., Cohen, J. D., and Griffiths, T. L. (2023). Rational simplification and rigidity in human planning. *Psychological Science*

Sumers, T., Ho, M. K., Griffiths, T. L., and Hawkins, R. (2023). Reconciling truthfulness and relevance via decision-theoretic utility. *Psychological Review*

Correa, C. G., Ho, M. K., Callaway, F., Daw, N. D., and Griffiths, T. L. (2023). Humans decompose tasks by trading off utility and computational cost. *PLOS Computational Biology*, 19:1–31

Sumers, T. R., Ho, M. K., Hawkins, R. D., and Griffiths, T. L. (2023). Show or tell? teaching with language outperforms demonstration but only when context is shared. *Cognition*

Ho, M. K., Abel, D., Correa, C. G., Littman, M. L., Cohen, J. D., and Griffiths, T. L. (2022). People construct simplified mental representations to plan. *Nature*

Ho, M. K., Saxe, R., and Cushman, F. (2022). Planning with theory of mind. *Trends in Cognitive Sciences*

Ho, M. K. and Griffiths, T. L. (2022). Cognitive science as a source of forward and inverse models of human decisions for robotics and control. *Annual review of Control, Robotics, and Autonomous Systems*

Ho, M. K., Cushman, F., Littman, M. L., and Austerweil, J. L. (2021). Communication in action: Planning and interpreting communicative demonstrations. *Journal of Experimental Psychology: General*

Gates, V., Callaway, F., Ho, M. K., and Griffiths, T. (2021). A rational model of people's inferences about others' preferences based on response times. *Cognition*, 217:104885

Sarin, A., Ho, M. K., Martin, J. W., and Cushman, F. A. (2021). Punishment is organized around principles of communicative inference. *Cognition*, 208:104544

Ho, M. K., Abel, D., Griffiths, T. L., and Littman, M. L. (2019). The value of abstraction. *Current Opinion in Behavioral Sciences*, 29:111–116

Ho, M. K., Cushman, F., Littman, M. L., and Austerweil, J. L. (2019). People teach with rewards and punishments as communication, not reinforcements. *Journal of Experimental Psychology: General*, 148:520–549

Ho, M. K., MacGlashan, J., Littman, M. L., and Cushman, F. (2017). Social is special: A normative framework for teaching with and learning from evaluative feedback. *Cognition*, 167:91–106

Articles Under Review

Correa, C. G., Sanborn, S., Ho, M. K., Callaway, F., Daw, N. D., and Griffiths, T. L. (under review). Exploring the hierarchical structure of human plans via program generation

Rane, S., Ho, M. K., Sucholutsky, I., and Griffiths, T. L. (under review). Concept alignment as a prerequisite for value alignment

Arumugam*, D., Ho*, M. K., Goodman, N. D., and Van Roy, B. (under review). Bayesian reinforcement learning with limited cognitive load

Dubey, R., Ho, M. K., Mehta, H., and Griffiths, T. (under review). Aha! moments correspond to metacognitive prediction errors

Allen, K. R., Brändle, F., Botvinick, M. M., Fan, J., Gershman, S. J., Gopnik, A., Griffiths, T. L., Hartshorne, J. K., Hauser, T. U., Ho, M. K., and , e. a. (under review). Using games to understand the mind

Refereed Conference Papers[1]

Peng, A., Netanyahu, A., Ho, M. K., Shu, T., Bobu, A., Shah, J., and Agrawal, P. (2023). Diagnosis, feedback, adaptation: A human-in-the-loop framework for test-time policy adaptation. In *International conference on machine learning*. PMLR

Sumers, T. R., Hawkins, R. D., Ho, M. K., Griffiths, T. L., and Hadfield-Menell, D. (2022). How to talk so your robot will learn: Instructions, descriptions, and pragmatics. In *Advances in Neural Information Processing Systems 35*, pages XX–XX. Curran Associates, Inc

Abel, D., Dabney, W., Harutyunyan, A., Ho, M. K., Littman, M., Precup, D., and Singh, S. (2021). On the expressivity of markov reward. In *Advances in Neural Information Processing Systems 34*, pages XX–XX. Curran Associates, Inc

Sumers, T. R., Hawkins, R. D., Ho, M. K., and Griffiths, T. L. (2021). Extending rational models of communication from beliefs to actions. In *Proceedings of the 43rd Annual Conference of the Cognitive Science Society*

Wu, C. M., Ho, M. K., Kahl, B., Leuker, C., Meder, B., and Kurvers, R. H. (2021). Specialization and selective social attention establishes the balance between individual and social learning. In *Proceedings of the 43rd Annual Conference of the Cognitive Science Society*

Sumers, T. R., Ho, M. K., Hawkins, R. D., Narasimhan, K., and Griffiths, T. L. (2021). Learning rewards from linguistic feedback. In *Proceedings of the aaai conference on artificial intelligence*, volume 35

[1]Note that in computer science, conference papers are the primary form of publication.

Ho, M. K., Abel, D., Cohen, J., Littman, M., and Griffiths, T. (2020). The efficiency of human cognition reflects planned information processing. In *Proceedings of the aaai conference on artificial intelligence*, volume 34, pages 1300–1307

Correa*, C. G., Ho*, M. K., Callaway, F., and Griffiths, T. L. (2020). Resource-rational task decomposition to minimize planning costs. In Denison., S., Mack, M., Xu, Y., and Armstrong, B., editors, *Proceedings of the 42nd Annual Conference of the Cognitive Science Society*, pages 2974–2980. Cognitive Science Society

Sumers, T. R., Ho, M. K., and Griffiths, T. L. (2020). Show or tell? demonstration is more robust to changes in shared perception than explanation. In Denison., S., Mack, M., Xu, Y., and Armstrong, B., editors, *Proceedings of the 42nd Annual Conference of the Cognitive Science Society*, pages 3073–3079. Cognitive Science Society

Wang, G., Trimbach, C., Lee, J. K., Ho, M. K., and Littman, M. L. (2020). Teaching a robot tasks of arbitrary complexity via human feedback. In *Proceedings of the 2020 acm/ieee international conference on human-robot interaction*, pages 649–657

Ho, M. K., Korman, J., and Griffiths, T. L. (2019). The computational structure of unintentional meaning. In Goel, A., Seifert, C., and Freksa, C., editors, *Proceedings of the 41st Annual Conference of the Cognitive Science Society*, pages 1915–1921. Cognitive Science Society

Carroll, M., Shah, R., Ho, M. K., Griffiths, T., Seshia, S., Abbeel, P., and Dragan, A. (2019). On the utility of learning about humans for human-ai coordination. In Wallach, H., Larochelle, H., Beygelzimer, A., d'Alché Buc, F., Fox, E., and Garnett, R., editors, *Advances in neural information processing systems*, volume 32. Curran Associates, Inc

Vazquez-Chanlatte, M., Jha, S., Tiwari, A., Ho, M. K., and Seshia, S. (2018). Learning task specifications from demonstrations. In Bengio, S., Wallach, H., Larochelle, H., Grauman, K., Cesa-Bianchi, N., and Garnett, R., editors, *Advances in neural information processing systems*, volume 31. Curran Associates, Inc

Ho, M. K., Littman, M. L., Cushman, F., and Austerweil, J. L. (2018). Effectively learning from pedagogical demonstrations. In Kalish, C., Rau, M., Rogers, T., and Zhu, J., editors, *Proceedings of the 40th Annual Conference of the Cognitive Science Society*, pages 505–510, Austin, TX. Cognitive Science Society

Ho, M. K., Littman, M. L., and Austerweil, J. L. (2017). Teaching by intervention: Working backwards, undoing mistakes, or correcting mistakes? In Gunzelmann, G., Howes, A., Tenbrink, T., and Davelaar, J., editors, *Proceedings of the 39th Annual Conference of the Cognitive Science Society*, pages 526–531, Austin, TX. Cognitive Science Society

MacGlashan, J., Ho, M. K., Loftin, R., Peng, B., Wang, G., Roberts, D. L., Taylor, M. E., and Littman, M. L. (2017). Interactive learning from policy-dependent human feedback. In *International conference on machine learning*, pages 2285–2294. PMLR

Ho, M. K., Littman, M., MacGlashan, J., Cushman, F., and Austerweil, J. L. (2016). Showing versus doing: Teaching by demonstration. In Lee, D. D., Sugiyama, M., Luxburg, U. V., Guyon, I., and Garnett, R., editors, *Advances in Neural Information Processing Systems 29*, pages 3027–3035. Curran Associates, Inc

Ho, M. K., MacGlashan, J., Greenwald, A., Littman, M. L., Hilliard, E., Trimbach, C., Brawner, S., Tenenbaum, J. B., Kleiman-Weiner, M., and Austerweil, J. L. (2016). Feature-based joint planning and

norm learning in collaborative games. In Papafragou, A., Grodner, D., Mirman, D., and Trueswell, J. C., editors, *Proceedings of the 38th Annual Conference of the Cognitive Science Society*, pages 1158–1163, Austin, TX. Cognitive Science Society

Kleiman-Weiner, M., Ho, M. K., Austerweil, J. L., Littman, M. L., and Tenenbaum, J. B. (2016). Coordinate to cooperate or compete: Abstract goals and joint intentions in social interaction. In Papafragou, A., Grodner, D., Mirman, D., and Trueswell, J. C., editors, *Proceedings of the 38th Annual Conference of the Cognitive Science Society*, pages 1679–1684, Austin, TX. Cognitive Science Society

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

Book Chapters

Chater, N., Griffiths, T. L., and Ho, M. K. (forthcoming). From probabilities to actions. In Griffiths, T. L., Chater, N., and Tenenbaum, J., editors, *Bayesian Models of Cognition: Reverse Engineering the Mind*. MIT Press, Cambridge

Cushman, F. A., Sarin, A., and Ho, M. K. (2021). Punishment as communication. In Doris, J. and Vargas, M., editors, *Oxford handbook of moral psychology*. Oxford University Press, Oxford

Workshop Papers, Posters, and Extended Abstracts

Ho, M. K. & Gureckis, T. (2023, August) Learning from Language and Experience. Extended abstract and poster presented at Cognitive Computational Neuroscience. Oxford, England.

Rane, S., Ho, M. K., Sucholustsky, I., & Griffiths, T. (2023, July) Concept Alignment as a Prerequisite for Value Alignment. Workshop paper at Workshop on Social Intelligence in Humans and Robots. Robotics: Science and Society (RSS).

Arumugam, D., Ho, M. K., Goodman, N. D., and Van Roy, B. (2022). On rate-distortion theory in capacity-limited cognition and reinforcement learning. In *NeurIPS workshop on information-theoretic principles in cognitive systems (infocog)*

Abel, D., Barreto, A., Bowling, M., Dabney, W., Hansen, S., Harutyunyan, A., Ho, M. K., Kumar, R., Littman, M. L., Precup, D., and Singh, S. (2022). Expressing non-markov reward to a markov agent. In *Proceedings of the conference on reinforcement learning and decision making*

Ho, M. K., Cohen, J.D. & Griffiths, T. (2022, August) Construal Set Selection and Rigidity in Planning. Extended Abstract presented at Cognitive Computational Neuroscience. San Francisco, California.

Harootonian S., Ho, M. K., Klevak, N, & Niv, Y (2022, August) The best advice you can give. Extended Abstract presented at Cognitive Computational Neuroscience. San Francisco, California.

Ho, M. K., Abel, D., Cohen, J. D., Littman, M. L. & Griffths, T. L. (2019, September) Optimal planning to plan: People partially plan based on plan specificity. Extended Abstract presented at Cognitive Computational Neuroscience. Berlin, Germany.

Seshia, S, Griffiths, T., Ho, M. K. & Vazquez-Chanlatte, Marcell (2019, November) Learning and Teaching Task Specifications from Demonstrations. Poster presented at NSF Cyber-Physical Systems PI Meeting. Washington, DC.

Vazquez-Chanlatte, M, Ho, M. K., Griffiths, T., Seshia, S. (2018, December) Communicating Compositional and Temporal Specifications by Demonstration. Poster presented at the 2nd IFAC Conference on Cyber-Physical and Human-Systems. Miami, Fl.

Ho, M. K., Sanborn, S., Callaway, F., Bourgin, D., & Griffiths, T. (2018, September). Human Priors in Hierarchical Program Induction. Extended Abstract presented at Cognitive Computational Neuroscience. Philadelphia, Pa.

Ho, M. K., Littman, M., MacGlashan, J., Cushman, F., & Austerweil, J. L. (2017, September) 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 data blitz 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. (2023, August). "Algorithmic, Representational, and Information Theoretic Costs in Decision-Making" Invited Talk at Cognitive Costs in Decision Making Session. The 12th Triennial Invitational Choice Symposium.

Ho, M. K. (2023, July). "Theory of Mind, Models of Cognition, and Social Interaction" Invited Talk at Workshop on Theory-of-Mind. International Conference On Machine Learning (ICML).

Ho, M. K. (2023, July). "Rationality, Computation, and Making Sense of Intelligence" Invited Talk at Diverse Intelligences Summer Institute (DISI). St. Andrews, Scotland.

Ho, M. K. (2023, July). "Cognitive Science as a Source of Design Principles for Interactive Machine Learning" Invited Talk at Social Intelligence in Humans and Robots Workshop. Robotics: Science and Systems Conference (RSS).

Ho, M. K. (2023, July). "Abstraction in Perception and Action" Invited Panelist at Abstractions Workshop. Annual Meeting of the Cognitive Science Society.

Ho, M. K. (2023, February). "Construction of Mental Representations in Human Planning" Consciousness Club seminar series. Wellcome Centre for Human Neuroimaging, University College London.

Ho, M. K. (2022, December). "Artificial Intelligence, Natural Stupidity, and Resource Rational Cognition" Invited Talk at Social Intelligence in Humans and Robots. Conference On Robot Learning (CORL).

Ho, M. K. (2022, November). "Construction of Mental Representations in Human Planning" Center for Computational Psychiatry Speaker Series. Icahn School of Medicine at Mount Sinai.

Ho, M. K. (2022, October). "World Models, Mind Models, and Planning" The Building Blocks of Human World Knowledge workshop. MIT.

Ho, M. K. (2022, September). "Construction of Mental Representations in Human Planning" Harvard Business School (PIs: Amit Goldenberg & Jillian Jordan).

Ho, M. K. (2022, September). "Construction of Mental Representations in Human Planning" Social and Cognitive Computational Neuroscience Lab (PI: Stefano Anzellotti). Boston College.

Ho, M. K. (2022, September). "Construction of Mental Representations in Human Planning" Basis Research Institute (PI: Zenna Tavares). Zuckerman Institute and Data Science Institute of Columbia University.

Ho, M. K. (2022, September). "Construction of Mental Representations in Human Planning" Concepts and Categories (ConCats) Seminar. New York University.

Ho, M. K. (2022, September). "Construction of Mental Representations in Human Planning" Center for Data Science Lunch Seminar. New York University.

Ho, M. K. (2022, August). "Construal Set Selection and Rigidity in Planning" Cognitive Computational Neuroscience (CCN) Conference, San Francisco, CA.

Harootonian, S., Niv, Y., Ho, M. K. (2022, August). "The Best Advice You Can Give" Cognitive Computational Neuroscience (CCN) Conference, San Francisco, CA.

Ho, M. K. (2022, July). "Construction of Mental Representations in Human Planning." Causal Cognition Lab (PI: David Lagnado). University College London.

Ho, M. K. (2022, July). "Construction of Mental Representations in Human Planning." DeepMind. London, UK.

Ho, M. K. (2022, July). "Construction of Mental Representations in Human Planning." Max Planck Institute for Biological Cybernetics. Tübingen, Germany.

Ho, M. K. (2022, July). "Communicative Decision-Making and Interactive Teaching." Invited Talk at the Computational Summer school on Modeling Social and collective behavior (COSMOS). Konstanz, Germany.

Ho, M. K. (2022, June). "Construction of Mental Representations in Human Planning." Invited talk at the Neurosymbolic Expeditions Project Virtual Seminar (PI: Armando Solar-Lezama). MIT.

Ho, M. K. (2022, June). "Construction of Mental Representations in Human Planning." Facebook Reality Labs.

Ho, M. K. (2022, June). "Construction of Mental Representations in Human Planning." Microsoft Research. New York City.

Abel, David, Barreto, André, Bowling, Michael, Dabney, Will, Hansen, Steven, Harutyunyan, Anna, Ho, M. K., Kumar, Ramana, Littman, Michael L, Precup, Doina and others (2022, June). "Expressing Non-Markov Reward to a Markov Agent." Oral Presentation at the Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM).

Ho, M. K. (2022, March). "Bridging Reinforcement Learning and Intuitive Pedagogy." Invited Talk at RL4ED Workshop at AAAI 2022.

Ho, M. K. (2022, February). "Cognitive Science as a Source of Design Principles for Interactive Machine Learning." New Jersey Institute of Technology.

Ho, M. K. (2022, February). "Cognitive Science as a Source of Design Principles for Interactive Machine Learning." Steven's Institute of Technology, New Jersey.

Ho, M. K. (2022, February). "Planning and Social Interaction as Meta-Computation." Department of Psychology, University of Southern California.

Ho, M. K. (2021, November). "Control of mental representations in human planning." Shenhav Lab (PI: Amitai Shenhav), Brown University.

Ho, M. K. (2021, November). "Control of mental representations in human planning." Parallel Distributed Processing Seminar, Princeton University.

Ho, M. K. (2021, October). "Control of mental representations in human cognition." Cognitive Development and Cognitive Science Brown Bag, Arizona State University.

Ho, M. K. (2021, September). "The role of context in human communication and its importance for transparent agency." Invited talk at CINEMENTAS Workshop on Transparent Agency and Learning.

Ho, M. K. & Griffiths, T. L. (2021, July). "Rationally Representing Games." Using Games to Understand Intelligence Workshop. Annual Meeting of the Cognitive Science Society.

Ho, M. K. (2021, March). "Resource-Rational Planning Representations" Moral Psychology Research Lab (PIs: Fiery Cushman and Joshua Greene), Harvard University.

Ho, M. K. (2020, October). "Models of Multi-agent Action and Inference." Computational Approaches to Social Cognition Talk Series (Harvard).

Ho, M. K. (2020, October). "Communicative Decision-Making and Interactive Teaching." Dartmouth Social Brain Brown Bag.

Ho, M. K. (2020, September). "Communication in Action: Planning and Interpreting Communicative Demonstrations." Social Learning Lab (PI: Hyowon Gweon), Stanford University.

Ho, M. K. (2020, August). "Communicative Decision-Making and Interactive Teaching." Computational Cognitive Neuroscience Lab (PI: Anne Collins), University of California Berkeley.

Ho, M. K. (2020, May). "Communication, Planning, and Meta-Reasoning." Causality in Cognition Lab (PI: Tobias Gerstenberg), Stanford University.

Ho, M. K. (2020, March). "Meta-Reasoning about Partial Plans." Parallel Distributed Processing Seminar, Princeton University.

Ho, M. K. (2019, October). "Interactive Communication and Miscommunication in Humans." Center for Human-Compatible AI, University of California, Berkeley.

Ho, M. K. (2019, October). "Human-machine collaboration and information processing limitations" VeHiCal Project Annual Meeting, University of California, Berkeley.

Ho, M. K. (2019, September). "Communication, Coordination, and Computation in Human Interaction." Department of Cognitive Science Seminar Series, Central European University.

Ho, M. K., Korman., J. & Griffiths T. L. (2019, July) "A computational account of unintentional speech acts." Annual Meeting of the Society for Philosophy and Psychology, San Diego, California.

Ho, M. K. (2019, June). "Communication in Interactive Settings." Department of Computer Science, University of North Carolina, Chapel Hill.

Ho, M. K. (2019, April). "Communicative Intentions in an Interactive World." Social-Ecological and Environmental Lab (PI: Alexandra Paxton), University of Connecticut.

Ho, M. K. (2019, April). "Communicative Intentions in an Interactive World." Yale Cognitive Development Laboratory (PI: Julian Jara-Ettinger).

Ho, M. K. (2019, April). "Communicative Intentions in Demonstrations and Rewards." Neurosicence of Social Decision-Making Seminar, Princeton University.

Ho, M. K. (2019, March). "Communicative and Pedagogical Intentions in an Interactive World." Concepts and Categories Seminar, New York University.

Ho, M. K. (2019, January). "Communicative Intent and Interactive Teaching." Project 6 Meeting (PI: Jonathan Cohen), Princeton University.

Ho, M. K. (2018, October). "Communicative Intent and Interactive Teaching." Cognition/Neuroscience Seminar Series, Stanford University.

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

Workshops

MacIver, M., Daw, N. D., Espinosa, G., Hamrick, J. B., Ho, M. K., Redish, A. D., Stadie, B. C., Wang, J. X. (2022) What is the place of planning? Generative Adversarial Collaboration at the Cognitive Computational Neuroscience (CCN) conference. Organizer. Website: `https://gac.ccneuro.org/gacs-by-year/2022-gacs/2022-3`.

Abel, D., Harutyunyan, A., Ho, M. K.(2022) Reinforcement Learning as a Model of Agency: Perspectives, Limitations, and Possibilities. Workshop at the Multi-disciplinary Conference on Reinforcement

Learning and Decision Making (RLDM). Organizer. Workshop website: https://sites.google.com/view/rl-as-agency/

Wu, C. M., Vélez N., Ho, M. K., & Goldstone, R. L. (2020) Cognition, Collectives, and Human Culture. Workshop at the 42nd Annual Conference of the Cognitive Science Society. Organizing committee member and presenter. Workshop website: https://cognitioncollectivesandculture.github.io/

Hamrick, J, Nematzadeh, A, Burns, K. Dupoux, E. Gopnik, A, & Tenenbaum, J. (2020) Bridging AI And Cognitive Science (BAICS). Workshop at the International Conference on Learning Representations. Program committee member. Website: https://baicsworkshop.github.io

Brys, T., Harutyunyan A., Mannion, P & Subramanian, K. (2017) Adaptive Learning Agents. Workshop at the International Conference on Autonomous Agents and Multiagent Systems. Program committee member. Website: http://ala2017.it.nuigalway.ie/

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

CS 810-C - Computational Cognitive Science, Stevens, Dept. of Computer Science Fall 2023
Professor

DS-GA 1006 - Capstone Project and Presentation, NYU, Center for Data Science Fall 2022
Professor (Co-taught)

CLPS 0700 - Intro. to 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
Weekly seminar series
Primary Organizer

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

Mentoring

Maya Malaviya (current Ph.D. student, Stevens Department of Computer Science)
Peiyao Hu (current Ph.D. student, Stevens Department of Computer Science)
Brian Pennisi (current Master's student project, NYU Center for Data Science)
Ruiqi He (visiting Ph.D. student, Max Planck Institute for Intelligent Systems)
Daniel Ritter (undergrad thesis, Brown University)
Albert Lin (undergrad junior project, Princeton; now Ph.D. student in Electrical Engineering at USC)

Ad hoc reviewer for

Trends in Cognitive Science
PLOS Computational Biology
Cognitive Science
Cognition
Biology Letters
Computational Brain & Behavior
CogSci
NeurIPS
Topics in Cognitive Science
Social Cognition
Proceedings of the National Academy of Sciences (PNAS)

Software

Developer for MSDM (Models of Sequential Decision Making) Python library
Site: `https://github.com/markkho/msdm`

Contributor to BURLAP (Brown-UMBC Reinforcement Learning And Planning) Java library
Site: `https://github.com/jmacglashan/burlap`

Skills

- General programming and machine learning 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

References

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