

Mark Thornton

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EMPLOYMENT AND EDUCATION

2020 - present	Assistant Professor, Psychological and Brain Sciences, Dartmouth College
2017 – 2020	Postdoctoral Research Associate, Psychology & PNI, Princeton University
2011 - 2017	Ph.D., Psychology, Harvard University
2011 - 2013	A.M., Psychology, Harvard University
2007 - 2011	A.B., Psychology, Princeton University

PUBLICATIONS

Thornton, M. A., & Tamir, D. I. (in press). People accurately predict the transition probabilities between actions. *Science Advances*.
[\[Preprint\]](#) [\[Data & code\]](#)

Thornton, M. A., & Tamir, D. I. (in press). The organization of social knowledge is tuned for prediction. In M. Gilead & K. Ochsner (Ed.) *The Neural Basis of Mentalizing*. Springer Nature.

Thornton, M. A., & Tamir, D. I. (2020). Perceiving actions before they happen: Psychological dimensions scaffold neural action prediction. *Social Cognitive and Affective Neuroscience*.
[\[Paper – open access\]](#) [\[Preprint\]](#) [\[Data & code\]](#)

Zhao, Z., Thornton, M. A., & Tamir, D. I. (2020). Accurate emotion prediction in dyads and groups and its potential social benefits. *Emotion*.
[\[Paper\]](#) [\[Preprint\]](#) [\[Data & code\]](#)

Thornton, M. A., & Tamir, D. I. (2020) People represent mental states in terms of rationality, social impact, and valence: Validating the 3d Mind Model. *Cortex*, 125, 44-59.
[\[Paper\]](#) [\[Preprint\]](#) [\[Data & code\]](#) [\[Blog\]](#)

Thornton, M. A., Weaverdyck, M. E., & Tamir, D. I. (2019). The brain represents people as the mental states they habitually experience. *Nature Communications*, 10, 2291.
[\[Paper – open access\]](#) [\[Preprint\]](#) [\[Data & code\]](#) [\[Blog\]](#)

Thornton, M. A., Weaverdyck, M. E., Mildner, J. N., & Tamir, D. I. (2019) People represent their own mental states more distinctly than those of others. *Nature Communications*, 10, 2117.
[\[Paper – open access\]](#) [\[Preprint\]](#) [\[Data & code\]](#) [\[Blog\]](#)

- Thornton, M. A., Weaverdyck, M. E., & Tamir, D. I. (2019). The social brain automatically predicts others' future mental states. *The Journal of Neuroscience*, 39(1), 140-148.
[\[Paper\]](#) [\[Preprint\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- Tamir, D. I.*, Thornton, M. A.* (2018). Modeling the predictive social mind. *Trends in Cognitive Sciences*, 22(3) 201-212.
[\[PDF\]](#) [\[Commentary by Rebecca Saxe\]](#)
- Thornton, M. A., & Mitchell, J. P. (2018). Theories of person perception predict patterns of neural activity during mentalizing. *Cerebral Cortex*, 28(10), 3505-3520.
[\[PDF\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- Thornton, M. A., & Mitchell, J. P. (2017). Consistent neural activity patterns represent personally familiar people. *Journal of Cognitive Neuroscience*, 29(9), 1583-1594.
[\[PDF\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- Thornton, M. A., & Tamir, D. I. (2017). Mental models accurately predict emotion transitions. *Proceedings of the National Academy of Sciences of the United States of America*, 14(23), 5982-5987.
[\[PDF\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- Rodriguez, S. B.*, Thornton, M. A.*, & Thornton, R. J. (2017). Discrimination of Wine Lactic Acid Bacteria by Raman Spectroscopy. *Journal of Industrial Microbiology and Biotechnology*, 48(8), 1167-1175.
[\[PDF\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- Tamir, D. I.*, Thornton, M. A.*, Contreras, J. M., & Mitchell, J. P. (2016). Neural evidence that three dimensions organize mental state representation: rationality, social impact, and valence. *Proceedings of the National Academy of Sciences of the United States of America*, 113(1), 194-199.
[\[PDF\]](#) [\[Data & code\]](#) [\[Blog\]](#) [\[Commentary by Dubois & Adolphs\]](#)
- Rodriguez, S. B., Thornton, M. A., & Thornton, R. J. (2013). Raman spectroscopy and chemometrics for identification and strain discrimination of the wine spoilage yeasts *Saccharomyces cerevisiae*, *Zygosaccharomyces bailii*, and *Brettanomyces bruxellensis*. *Applied and Environmental Microbiology*, 79(20), 6264-6270.
[\[PDF\]](#) [\[Blog\]](#)
- Thornton, M. A., & Conway, A. R. A. (2013). Working memory for social information: Chunking or domain-specific buffer? *NeuroImage*, 70, 233-239.
[\[PDF\]](#)

*equal contributions.

PREPRINTS

- Barrick, E. M., Thornton, M. A., & Tamir, D. I. (2020). Mask exposure during COVID-19 changes emotional face processing. *PsyArXiv*.
[\[Preprint\]](#) [\[Data & code\]](#)
- Weaverdyck, M. E., Thornton, M. A., & Tamir, D. I. (2020). Stable neural representations of mental states across target people and stimulus modalities. *PsyArXiv*.
[\[Preprint\]](#) [\[Data & code\]](#)
- Thornton, M. A., Rmus, M., & Tamir, D. I. (2020). People learn mental state concepts from mental state dynamics. *PsyArXiv*.
[\[Preprint\]](#) [\[Data & code\]](#)
- Thornton, M. A., Wolf, S., Reilly, B. J., Slingerland, T. G. & Tamir, D. I. (2020). The 3d Mind Model characterizes how people understand mental states across modern and historical cultures *PsyArXiv*.
[\[Preprint\]](#) [\[Data & code\]](#)
- Thornton, M. A., & Tamir, D. I. (2019). Six dimensions describe action understanding: the ACT-FASTaxonomy. *PsyArXiv*.
[\[Preprint\]](#) [\[Data & code\]](#)

HONORS AND AWARDS

- | | |
|------|---|
| 2015 | Sackler Scholar in Psychobiology |
| 2015 | Social and Affective Neuroscience Society Trainee Award |
| 2014 | Harvard University Certificate of Distinction in Teaching |
| 2013 | Harvard University Certificate of Distinction in Teaching |
| 2012 | National Science Foundation Graduate Research Fellowship |
| 2011 | Edward E. Jones Memorial Thesis Prize, Princeton University |
| 2011 | Summa cum laude, Phi Beta Kappa, and Sigma Xi, Princeton University |
| 2009 | Shapiro Prize for Academic Excellence, Princeton University |

INVITED TALKS

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|------|---|
| 2020 | IMT School Lucca, Neuroscience Research Seminar |
| 2019 | Johns Hopkins University, Social Cognition from Flies to Humans |
| 2019 | Dartmouth University, Methods in Neuroscience at Dartmouth |
| 2018 | Brown University, Social Cognitive Science Brown Bag |
| 2018 | Harvard University, Methods Dinners |
| 2018 | Technische Universität Dresden, Understanding Others |
| 2018 | Dartmouth University, Methods in Neuroscience at Dartmouth |
| 2018 | New York University, Concepts and Categories Seminar |
| 2018 | Princeton University, Social Research Seminar |
| 2017 | Dartmouth College, Center for Social Brain Sciences |

2017 Princeton University, Neuroscience of Social Decision Making

CONFERENCE PRESENTATIONS

- Thornton, M. A. (2021, February). People represent situations and other people as sums of their typical actions and mental states. Talk presented at the Society for Personality and Social Psychology annual meeting (online).
- Thornton, M. A. (2021, January). Representational similarity analysis workshop. Talk presented at the Society for Social Neuroscience annual meeting (online).
- Thornton, M. A. (2020, May). Using deep learning to automatically annotate behavior in naturalistic fMRI stimuli. Talk scheduled for the Computational SAN preconference of the Social and Affective Neuroscience Society annual meeting, Santa Barbara, CA. Cancelled due to covid19.
- Thornton, M. A. (2020, February). Mental state dynamics shape mental state concepts. Talk presented at the Social Cognition preconference of the Society for Personality and Social Psychology annual meeting, New Orleans, LA.
- Gureckis, T. M., Daw, N. D., Thornton, M. A., & Borst, J. P. (2019, September). How can we test cognitive models with brain-activity data? Cross-collaboration breakout session led at the Conference on Cognitive Computational Neuroscience, Berlin, Germany.
- Chen, J., Thornton, M. A., & Calhoun, A. J. (2019, September). How can we measure and model the dynamics of interacting minds? Cross-collaboration breakout session led at the Conference on Cognitive Computational Neuroscience, Berlin, Germany.
- Thornton, M. A. & Tamir, D. I. (2019, May). Neural representations of others' current actions accurately predict their likely future actions. Talk presented at the Social and Affective Neuroscience Society annual meeting, Miami, FL.
- Thornton, M. A., Burkart, D., & Tamir, D. I. (2019, February). Comparing the conceptual structure of affect across cultures via the application of word embeddings to international social media. Talk presented at the Society for Personality and Social Psychology annual meeting, Portland, OR.
- Thornton, M. A., & Tamir, D. I. (2019, February). Perceptions accurately predict the transitional probabilities between actions. Poster presented at the Social Cognition preconference of the Society for Personality and Social Psychology annual meeting, Portland, OR.
- Thornton, M. A., Weaverdyck, M. E., & Tamir, D. I. (2018, May). Neural representations of people and mental states reflect predictive coding of future states. Talk presented at the Association for Psychological Science annual meeting, San Francisco, CA.

- Thornton, M. A., Weaverdyck, M. E., & Tamir, D. I. (2018, May). Neural representations of people and mental states reflexively encode predictions of future states. Poster presented at the Social and Affective Neuroscience Society annual meeting, Brooklyn, NY.
- Thornton, M. A., Weaverdyck, M. E., & Tamir, D. I. (2018, March). Neural representations of people and mental states reflexively encode predictions of future states. Poster presented at the Society for Personality and Social Psychology annual meeting, Atlanta, GA.
- Thornton, M. A., Weaverdyck, M. E., & Tamir, D. I. (2017, March). Neural representations of others' mental states grow less distinct with psychological distance. Poster presented at the Social and Affective Neuroscience Society annual meeting, Los Angeles, CA.
- Thornton, M. A., & Mitchell, J. P. (2017, January). Theories of person perception predict patterns of neural activity during mentalizing. Talk presented at the Society for Personality and Social Psychology annual meeting, San Antonio, TX.
- Thornton, M. A., & Tamir, D. I. (2017, January). Mental models accurately predict emotion transitions. Talk presented at the Society for Personality and Social Psychology annual meeting, San Antonio, TX.
- Thornton, M. A., & Mitchell, J. P. (2016, April). Theories of person perception predict patterns of neural activity during mentalizing. Poster presented at the Social and Affective Neuroscience Society annual meeting, New York, NY.
- Thornton, M. A., & Mitchell, J. P. (2016, February). Theories of person perception predict patterns of neural activity during mentalizing. Talk presented at the Social Brain Sciences Symposium, Waltham, MA.
- Thornton, M. A., & Tamir, D. I. (2016, January). Representing other minds. Poster presented at the Society for Personality and Social Psychology annual meeting, San Diego, CA.
- Thornton, M. A., & Mitchell, J. P. (2016, January). Theories of person perception predict patterns of neural activity during mentalizing. Poster presented at the Society for Personality and Social Psychology annual meeting Social Cognition Preconference, San Diego, CA.
- Thornton, M. A., & Mitchell, J. P. (2015, April). Ventral medial prefrontal cortex supports a multidimensional code for similarity to self. Talk presented at the Social and Affective Neuroscience annual meeting, Boston, MA.
- Thornton, M. A., & Mitchell, J. P. (2015, March). Ventral medial prefrontal cortex supports a multidimensional code for similarity to self. Poster presented at Cognitive Neuroscience Society annual meeting, San Francisco, CA.

- Thornton, M. A., & Mitchell, J. P. (2014, April). The neural organization of person knowledge. Poster presented at Social and Affective Neuroscience Society annual meeting, Denver, CO.
- Thornton, M. A., Tamir, D. I., Contreras, J. M., & Mitchell, J. P. (2014, April). Neural organization of mental state knowledge. Poster presented at Cognitive Neuroscience Society annual meeting, Boston, MA.
- Thornton, M. A., Tamir, D. I., Contreras, J. M., & Mitchell, J. P. (2014, February). Neural representations of mental states are encoded according to agency and experience. Talk presented at Social Brain Sciences Symposium, Chestnut Hill, MA.
- Thornton, M. A., & Mitchell, J. P. (2013, July). Efficiency in social working memory. Poster presented at Wellcome Trust Summer School on the Biology of Social Cognition, Hinxton, UK.
- Thornton, M. A., Contreras, J. M., & Mitchell, J. P. (2012, December). Greater FFA pattern similarity for other-race than same-race faces. Talk presented at Social Brain Sciences Symposium, Cambridge, MA.

Software

- Thornton, M. A. (2015-present) MySocialBrain.org: A platform for innovative, interactive online psychology research. Available online at: <https://mysocialbrain.org>
- Thornton, M. A. (2018) affectr: An R package for quantitative multidimensional sentiment analysis. Available online at: <https://github.com/markallenthornton/affectr>
- Thornton, M. A. (2016) MatlabTFCE: A pure MATLAB implementation of multiple comparison correction for functional magnetic resonance imaging via maximal statistic permutation testing with threshold free cluster enhancement. Available online at: <https://github.com/markallenthornton/MatlabTFCE>

TEACHING AND ADVISING

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|-------------|---|
| 2020 | Instructor
Psyc 10: Experimental Design, Methodology, and Data Analysis Procedures
Dartmouth College, Department of Psychological and Brain Science |
| 2018-2019 | Instructor/Pop-up PI
Methods in Neuroscience at Dartmouth (MIND) Computational Summer School |
| 2013 - 2015 | Teaching Fellow
Psyc 1950, Intermediate Statistical Analysis in Psychology |

Harvard University, Department of Psychology

2011 Senior Peer Academic Advisor
Princeton University

2008 Mathematics Instructor and Summer Advisor
Upward Bound, Central High School, Fresno, California

PROFESSIONAL SERVICE AND MEMBERSHIPS

Ad hoc reviewer – *Frontiers in Psychology, Social Neuroscience, Social Cognitive and Affective Neuroscience, The Journal of Neuroscience, Neuropsychologia, Journal of Experimental Psychology: General, Nature Human Behaviour, Cognitive Affective and Behavioral Neuroscience, Neuroscience and Biobehavioral Reviews, NeuroImage, Psychological Review, Memory and Cognition, Journal of Research in Personality, Cortex, Current Biology, Nature Communications, Developmental Science, Journal of Personality and Social Psychology: Attitudes and Social Cognition, Organizational Behavioral and Human Decision Processes, eLife, Proceedings of the National Academy of Sciences, Journal of Experimental Social Psychology, Social Psychological and Personality Science*

2013 - present	Social and Affective Neuroscience Society
2015 - present	Society for Personality and Social Psychology
2018 – 2019	Association for Psychological Science
2018 – 2019	Society for Neuroscience
2013 - 2015	Cognitive Neuroscience Society