

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

*indicates equal contributions

- Lin, C., Keles, U., Thornton, M. A., & Adolphs, R. (Accepted). How trait impressions of faces shape subsequent mental state inferences. *Nature Human Behaviour*.
[\[Stage 1 Protocol\]](#) [\[Data & code\]](#)
- Sened, H., Phan, T., Thornton, M. A., Verosky, S., & Tamir, D. (2024). Disentangling the effects of similarity, familiarity, and liking on social inference strategies. *British Journal of Social Psychology*.
[\[Paper\]](#) [\[Preprint\]](#) [\[Data & code\]](#)
- Nencheva, M. L., Nook, E. C., Thornton, M. A., Lew-Williams, C., & Tamir, D. (2024). The emergence of organized emotion dynamics in childhood. *Affective Science*.
[\[Paper\]](#) [\[Preprint\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- Barrick, E., Thornton, M. A., Zhao, Z., & Tamir, D. I. (2024) Individual differences in emotion prediction and implications for social success. *Emotion*.
[\[Paper\]](#) [\[Preprint\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- Sievers, B.*, & Thornton, M.A.* (2024). Deep social neuroscience: The promise and peril of using artificial neural networks to study the social brain. *Social Cognitive and Affective Neuroscience*, 19(1).
[\[Paper – open access\]](#) [\[Preprint\]](#)
- Thornton, M. A., & Tamir, D. I. (2024). Neural representations of situations and mental states are composed of sums of representations of the actions they afford. *Nature Communications*, 15(1).
[\[Paper – open access\]](#) [\[Preprint\]](#) [\[Data & code\]](#)

- Tamir, D. I., & Thornton, M. A., (2024). Predicting other people shapes the social mind. *Advances in Experimental Social Psychology*, 69, 263-315.
[\[Paper\]](#) [\[PDF\]](#)
- Wheatley, T.*, Thornton, M. A.*, Stolk, A.*, & Chang, L.J.*, (2024). The emerging science of interacting minds. *Perspectives on Psychological Science*, 19(2), 355-373.
[\[Paper\]](#) [\[PDF\]](#)
- Lin, C., Bulls, L. S.*, Tepfer, L. J.*, Vyas, A.*, Thornton, M. A., (2023). Advancing naturalistic affective science with deep learning. *Affective Science*, 4, 550-562.
[\[Paper\]](#) [\[Preprint\]](#)
- Lin, C., & Thornton, M. A. (2023). Evidence for bidirectional causation between trait and mental state inferences. *Journal of Experimental Social Psychology*, 108, 104495.
[\[PDF\]](#) [\[Preprint\]](#) [\[Data & code\]](#)
- Thornton, M. A., Rmus, M., Vyas, A. D., & Tamir, D. I. (2023). Transition dynamics shape mental state concepts. *Journal of Experimental Psychology: General*, 152(10), 2804–2829.
[\[PDF\]](#) [\[Preprint\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- Thornton, M. A., Wolf, S., Reilly, B. J., Slingerland, E. G. & Tamir, D. I. (2022). The 3d Mind Model characterizes how people understand mental states across modern and historical cultures. *Affective Science*, 3(1), 93-104.
[\[Paper\]](#) [\[Preprint\]](#) [\[Data & code\]](#)
- Thornton, M. A., & Tamir, D. I. (2022). Six dimensions describe action understanding: the ACT-FASTaxonomy. *Journal of Personality and Social Psychology*, 122(4), 577-605.
[\[Paper\]](#) [\[Preprint\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- Zhao, Z., Thornton, M. A., & Tamir, D. I. (2022). Accurate emotion prediction in dyads and groups and its potential social benefits. *Emotion*, 22(5), 1030-1043.
[\[Paper\]](#) [\[Preprint\]](#) [\[Data & code\]](#)
- Barrick, E. M., Thornton, M. A., & Tamir, D. I. (2021). Mask exposure during COVID-19 changes emotional face processing. *PLoS ONE*, 0258470.
[\[Paper – open access\]](#) [\[Preprint\]](#) [\[Data & code\]](#)
- Weaverdyck, M. E., Thornton, M. A., & Tamir, D. I. (2021). Stable neural representations of mental states across target people and stimulus modalities. *NeuroImage*, 238, 118258.
[\[Paper – open access\]](#) [\[Preprint\]](#) [\[Data & code\]](#)
- Thornton, M. A., & Tamir, D. I. (2021). The organization of social knowledge is tuned for prediction. In M. Gilead & K. Ochsner (Ed.) *The Neural Basis of Mentalizing*. Springer Nature.
[\[Chapter\]](#) [\[Book\]](#)

- Thornton, M. A., & Tamir, D. I. (2021). People accurately predict the transition probabilities between actions. *Science Advances*, 7(9), eabd4995.
[\[Paper – open access\]](#) [\[Preprint\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- Thornton, M. A., & Tamir, D. I. (2020). Perceiving actions before they happen: Psychological dimensions scaffold neural action prediction. *Social Cognitive and Affective Neuroscience*, 16(8), 807-815.
[\[Paper – open access\]](#) [\[Preprint\]](#) [\[Data & code\]](#) [\[Blog\]](#)
- 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.
[\[PDF\]](#)

PREPRINTS AND MANUSCRIPTS

- Thornton, M.A. (Invited submission, *Cognition and Emotion*). Deep learning models of emotion understanding. *PsyArXiv*.
[\[Preprint\]](#)
- Lin, C., & Thornton, M. A. (2024). Bottom-up and top-down information determinants of naturalistic trait impression updating. *PsyArXiv*.
[\[Preprint\]](#) [\[Data & code\]](#)
- Cheng, X.*, Popal, H.*, Wang, H.*, Hu, R., Zang, Y., Zhang, M., Thornton, M. A., Cai, H., Bi, Y., Reilly, J., Olson, I. R., Wang, Y. (2023). The Conceptual Structure of Human Relationships Across Modern and Historical Cultures. *PsyArXiv*.
[\[Preprint\]](#) [\[Data & code\]](#)
- Lin, C., & Thornton, M. A. (2021). Fooled by beautiful data: Visualization aesthetics bias trust in science, news, and social media. *PsyArXiv*.
[\[Preprint\]](#) [\[Data & code\]](#)

HONORS AND AWARDS

- | | |
|------|---|
| 2021 | Association for Psychological Science Rising Star |
| 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

FUNDING

- 2023 Hopkins Arts Integration Program grant, Dartmouth College
- 2022 CompX Grant, Neukom Institute for Computational Science, Dartmouth College
- 2015 Sackler Scholar in Psychobiology, Harvard University
- 2012 National Science Foundation Graduate Research Fellowship

INVITED TALKS

- 2024 McGill University, Social Psych Tupperware
- 2024 UCLA, Dynamic Interactions and Methodologies Symposium
- 2024 Michigan State University, Communication Science Futures
- 2024 SANS, AI Approaches to Social and Affective Neuroscience
- 2023 Gordon Research Conference, Visualization in Science and Education
- 2023 Tel Aviv University, Empathies, Brain, and the Moving Image
- 2021 University of Pennsylvania, Social and Behavioral Science Initiative
- 2021 Harvard University, Computational Approaches to Social Cognition
- 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

TEACHING AND ADVISING

- 2022-2024 Instructor
 Psyc 23: Social Psychology
 Dartmouth College, Department of Psychological and Brain Science
- 2021-2023 Instructor
 Psyc 83.08: Social and Neural Networks
 Dartmouth College, Department of Psychological and Brain Science

2021-2023	Instructor Psyc 43: Emotion Dartmouth College, Department of Psychological and Brain Science
2021, 2025	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 Psych 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

Service to field:

2024	Lead organizer, SPSP Computational Preconference
2023	Co-organizer, Methods in Neuroscience at Dartmouth
2023-present	Social Media Co-chair, SANS
2022-present	Director-at-Large, SANS Board
2022-2023	Panelist, Princeton Academic Job Market Panel
2022	Co-organized SANS Naturalistic Data Analysis Challenge
2021	SANS program committee

Departmental/college service:

2023 - 2024	Member, Committee on Faculty, Dartmouth College
2023 - 2024	Member, Neuroscience Committee, Dartmouth PBS
2022 - 2023	Member, Norms and Wellbeing Committee, Dartmouth PBS
2022 - 2023	Member, Behavioral/Systems Faculty Search Committee, Dartmouth PBS
2021 - present	Departmental Twitter account operator, Dartmouth PBS
2021 - 2022	Member, Wellbeing Committee, Dartmouth PBS
2020 - 2021	Member, Inclusivity, Diversity, and Culture Committee, Dartmouth PBS

Ad hoc reviewer:

Proceedings of the National Academy of Sciences, Nature Human Behaviour, Nature Communications, Current Biology, Journal of Personality and Social Psychology:

Attitudes and Social Cognition, Social Cognitive and Affective Neuroscience, NeuroImage, Cortex, Cerebral Cortex, Psychological Review, Frontiers in Psychology, Social Neuroscience, The Journal of Neuroscience, Neuropsychologia, Journal of Experimental Psychology: General, Cognitive Affective and Behavioral Neuroscience, Neuroscience and Biobehavioral Reviews, Collective Intelligence, Memory and Cognition, Psychonomic Bulletin & Review, Journal of Research in Personality, Developmental Science, Organizational Behavioral and Human Decision Processes, Translational Neurodegeneration, eLife, Journal of Experimental Social Psychology, Social Psychological and Personality Science, Scientific Reports, iScience, Cambridge University Press, Cognitive Science, Communications Psychology, Emotion, Social Cognition, Neuroscience and Biobehavioral Reviews, Imaging Neuroscience

Memberships:

2013 - present	Social and Affective Neuroscience Society
2015 - present	Society for Personality and Social Psychology
2018 - 2019, 2022-2023	Association for Psychological Science
2018 - 2019	Society for Neuroscience
2013 - 2015	Cognitive Neuroscience Society