

NICHOLAS T. FRANKLIN

Curriculum Vitae

Harvard University, Department of Psychology
Northwest 295.06, 52 Oxford St, Cambridge, Massachusetts 02138
nfranklin@fas.harvard.edu, nicholastfranklin.com

EDUCATION

Ph.D. Brown University, Cognitive Science, 2018
Advisor: Michael J. Frank

B.S., B.A. The University of Texas at Austin, Neurobiology and Spanish, 2009

ACADEMIC EMPLOYMENT

2017 – Postdoctoral Fellow, Harvard University, Department of Psychology

2009 – 2011 Research Assistant, Weill Cornell Medical College

RESEARCH INTERESTS

Computational modeling of human decision making, learning and generalization. I develop statistical and neural network models of how people learn and structure their actions. I use these models to generate theoretical predictions of behavior and their underlying neurobiological mechanisms.

PUBLICATIONS

Pre-prints

Franklin NT, Frank MJ (2017). Compositional clustering in task structure learning. *bioRxiv* 196923; doi: <https://doi.org/10.1101/196923>

Peer-reviewed articles

Franklin, N. T., & Frank, M. J. (2015). A cholinergic feedback circuit to regulate striatal population uncertainty and optimize reinforcement learning. *Elife*

Teslovich, T., Mulder, M., Franklin, N. T., Ruberry, E. J., Millner, A., Somerville, L. H., Simen, P., Durston S., & Casey, B. J. (2014). Adolescents let sufficient evidence accumulate before making a decision when large incentives are at stake. *Developmental Science*

Casey, B. J., Somerville, L. H., Gotlib, I. H., Ayduk, O., Franklin, N. T., Askren, M. K., Jonides J., Berman M. G., Wilson N. L., Teslovich T., & Glover, G. (2011). Behavioral and

neural correlates of delay of gratification 40 years later. *Proceedings of the National Academy of Sciences*

FELLOWSHIPS & AWARDS

- 2016 Kenneth R. and Pamela L. Galner Fund Dissertation Fellowship
2009 Excellence in Human Development, Family, & Social Science Research, UT Austin
2009 Undergraduate Research Fellowship, UT at Austin
2008 *Phi Beta Kappa*

CONFERENCE ACTIVITY

Talks

Franklin NT and Frank MJ. (2015). Independent clustering and generalization of action-outcome and outcome-values in goal-directed learning. *45th Annual Meeting of the Society for Neuroscience*

Posters Presented

- Franklin NT and Frank MJ. (2017). “Compositional Task Clusters in Human Transfer Learning”, *The Multi-disciplinary Conference on Reinforcement Learning and Decision Making*
- Franklin NT and Frank MJ. (2017). A Cholinergic Feedback Mechanism to Modulate Dopaminergic Learning within the Striatum in Response to Striatal Population Uncertainty *50th Meeting of the Winter Conference on Brain Research*
- Franklin NT and Frank MJ. (2016). Independent generalization of action-effects and outcome-values in multistep and goal-directed learning *38^e Symposium International du GRSNC, The Neuroscience of Decision Making*
- Franklin NT and Frank MJ. (2016). Generalization in goal-directed learning: benefits of independent clustering of world-model and goals *23rd Annual Meeting of the Cognitive Neuroscience Society*
- Franklin NT and Frank MJ (2016). Generalization in goal-directed learning: independent clustering of action- effect and outcome-values *Computational and Systems Neuroscience (Cosyne)*
- Franklin NT and Frank MJ. (2014). A Bayesian perspective on flexibly responding to stochastic and non-stationary task: a role for striatal acetylcholine. *Computational and Systems Neuroscience (Cosyne)*
- Franklin NT and Frank MJ. (2013). Contributions of tonically active neurons and uncertainty to striatal learning. *43rd Annual Meeting of the Society for Neuroscience*
- Franklin NT and Frank MJ. (2013). Uncertainty and the striatum: How tonically active neurons may aid learning in dynamic environments. *Computational and Systems Neuroscience (Cosyne)*
- Franklin NT and Dominick A. (2009). The Role of Attention in Reward Motivated Learning. *University of Texas at Austin College of Natural Sciences Undergraduate Forum*

TECHNICAL SKILLS

Artificial Intelligence: reinforcement learning, Bayesian modeling, neural networks
Statistical Analysis: Bayesian analysis, non-parametric analysis
Machine Learning: classification, regression, clustering, unconstrained optimization
Programming: Python (scikit-learn, cython, pymc3, keras, tensorflow), Matlab, Javascript

REVIEWING

Ad-Hoc

Behavioral and Brain Sciences, Biological Psychiatry, Cognition, Cognition & Emotion, Connection Science, Journal of Neuroscience, Nature, Nature Neuroscience, Neuropsychopharmacology, PLOS Computational Biology, Psych Review

TEACHING EXPERIENCES

Graduate Teaching Assistant

2013-14, 16 Computational Cognitive Neuroscience
2104 Introduction to Cognitive Neuroscience
2013 Computational Cognitive
2012 Making Decisions

PROFESSIONAL SERVICE

2014-2015 Coordinator, CLPS department Cognition Seminar Series

LANGUAGES

Spanish (proficient)
English (native speaker)

PROFESSIONAL MEMBERSHIPS

Society for Neuroscience
Cognitive Neuroscience Society