Jeffrey B. Dennison

POST DOCTORAL RESEARCHER · PSYCHOLOGY, NEUROSCIENCE, MRI

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Jeffrey Dennison

Education

Temple University   *Philadelphia, PA*

PHD PSYCHOLOGY   *2018 - 2023*

- Advisor: Dr. David Smith
- Dissertation: Making Decisions with Limited Information: Forming and Updating Ambiguous Beliefs

New York University   *New York, NY*

MS PSYCHOLOGY   *2014 - 2016*

- Advisor: Dr. Paul Glimcher
- Honors thesis: A principal components analysis of self report and econometric measures of risk preferences and impulsivity

Hawaii Pacific University   *Honolulu, HU*

BS PSYCHOLOGY   *2009 - 2013*

- Undergrad research advisors: Dr. Patricia Ellerson, Dr. Kaatherine Aumer
- Honors thesis: The effect of implicit and explicit self esteeem on cortisol following a stress manipulation

Professional Experience

Current	**IDEA Data Analyst (Statistics and probability)**,	Kate Czehut, NJ DOE: Office of Fiscal and Data Services
2023-2025	**Postdoctoral Research Fellow (Radiology)** ,	Felix W. Wehrli, University of Pennsylvania
2018-2023	**Graduate Research Assistant** ,	David V. Smith, Temple University
2016-2018	**Lab Manager and Research Assistant** ,	Mauricio Delgado, Rutgers University
2016	**Graduate Teaching Assistant**,	Psychology, New York University

Publications

PUBLISHED

Dennison,J.B., Wu,P., Langham,M., Schwab,R., Detre,J., Wehrli, F.W. (2025). Neurometabolic Response to Apneic Stimuli Tracks Global Grey Matter Volume Loss in Patients with Obstructive Sleep Apnea. Journal of Sleep Research

Dennison, J. B., Langham, M. C., Wiemken, A. S., Xu, J., Schwab, R. J., Detre, J. A., & Wehrli, F. W. (2025). Concurrent evaluation of cerebral oxygen metabolism and upper airway architecture via temporally resolved MRI. Journal of Cerebral Blood Flow & Metabolism, 0271678X251345293.

Kamona, N., Langham, M. C., Deshpande, R. S., Vu, B. T. D., Hosseini, M., **Dennison, J.**, ... & Wehrli, F. W. (2025). MRI based quantification of whole organ renal metabolic rate of oxygen during free breathing. Magnetic Resonance in Medicine.

Wyngaarden III, J. B., Yang, Y., **Dennison, J. B.**, & Smith, D. V. (2025). A Dataset of Risky and Ambiguous Decisions Using a Novel Linked Colored Lottery Task Across Two Studies. Data in Brief, 111844.

Smith, D. V., Ludwig, R. M., **Dennison, J. B.**, Reeck, C., & Fareri, D. S. (2024). An fMRI dataset on social reward processing and decision making in younger and older adults. Scientific Data, 11(1), 158.

Sazhin, D., Wyngaarden, J. B., **Dennison, J. B.**, Zaff, O., Fareri, D., McCloskey, M. S., & Smith, D. V. (2024). Trait reward sensitivity modulates connectivity with the temporoparietal junction and anterior insula during strategic decision making. Biological Psychology, 108857.

Smith, D. V., Ludwig, R. M., **Dennison, J. B.**, Reeck, C., & Fareri, D. S. (2024). An fMRI Dataset on Social Reward Processing and Decision Making in Younger and Older Adults. Scientific Data, 11(1), 158.

Wyngaarden, J. B., Johnston, C. R., Sazhin, D., **Dennison, J. B.**, Zaff, O., Fareri, D., ... & Jarcho, J. M. (2024). Corticostriatal responses to social reward are linked to trait reward sensitivity and subclinical substance use in young adults. Social Cognitive and Affective Neuroscience, 19(1).

Zaff, O., Wyngaarden, J. B., **Dennison, J. B.**, Sazhin, D., Chein, J., McCloskey, M., ... & Fareri, D. S. (2023). Social context and reward sensitivity enhance corticostriatal function during experiences of shared rewards. bioRxiv.

Dennison, J. B., Tepfer, L. J., & Smith, D. V. (2023). Tensorial Independent Component Analysis Reveals Social and Reward Networks Associated with Major Depressive Disorder. *Human Brain Mapping* DOI: 10.1002/hbm.26254

Dennison, J. B., Sazhin, D., & Smith, D. V. (2022). Decision neuroscience and neuroeconomics: Recent progress and ongoing challenges. *Wiley Interdisciplinary Reviews: Cognitive Science*, 13(3), e1589.

Sazhin D, Frazier AM, Haynes CR, Johnston CR, Chat IK, **Dennison J.B.**, Bart CP, McCloskey ME, Chein JM, Fareri DS, Alloy LB, Jarcho JM, Smith DV.(2020) The Role of Social Reward and Corticostriatal Connectivity in Substance Use. *Journal of Psychiatry and Brain Science.* ;5:e200024. doi: 10.20900/jpbs.20200024. Epub 2020 Oct 29. PMID: 33215046; PMCID: PMC7673297.

Botvinik-Nezer, R., Holzmeister, F., Camerer, C.F.,... **Dennison, J.B.**,... (2020), Variability in the analysis of a single neuroimaging dataset by many teams. *Nature* 582, 84–88. https://doi.org/10.1038/s41586-020-2314-9

In Preperation

Aumer, K. & **Dennison, J.B.,** (2025) Perceived Threat as the Driver of Hate: Insights from the 2024 U.S. Election, Under Review at: Journal of Political Science & Politics

Dennison, J.B.*, Farhad, S.A.S*, Wyngaarden, J.B., Clithero,J.A., & Smith, D.V.,(2025), Ambiguity Preferences Are Distinct from Beliefs About Risk, Under Review at: Memory and Cognition

Awards, Fellowships, & Grants

2022	**Spotlight Award**, Society for Neuroeconomics	
2015	**Teaching Honorarium**, New York University Psychology Department	*$ 500*
2012	**Outstanding Research Practicum Student Award**, Hawaii Pacific University, Psychology Department	
	Undergraduate Research Award, Psi Chi, International Honor Society in Psychology	*$ 2,000*

Presentations
* mentored student

Talks and Workshop presentations

Dennison, J.B.,M. Langham, F. Wehrli(2025), Novel MRI Pulse Sequence to Image Upper Airway Anatomy and Measure Changes in Neurometabolism During Volitional Model Apneas. International Society of Magnetic Resonance in Medicine; Honolulu, HI

Dennison, J.B.(2023-2024), Hierarchical Bayesian Modeling in Python with PyMC. Temple University Coding Outreach Group Summer Workshops; Philadelphia,PA

Yovanno, R., Buckner, A., Kamath, R., **Dennison, J.B.**(2022), Comparing the visual hierarchy to layers of convolutional neural networks to probe visual abstraction. Neuromatch Academy Annual Workshop, Virtual

Dennison, J.B.(2019), Working with Neuroimaging data in Python via NiPy. Temple University Coding Outreach Group Summer Workshops; Philadelphia,PA

Conference Posters

Jaroszynsk, K., **Dennison, J.,** Favilla, C.G., Hyunyeol,L., Wehrli,F.W. (2026). Evaluation of Cerebral Oxygen Metabolism in Patients with Carotid Steno-occlusive Disease by 3D Constrained Quantitative BOLD. The International Society for Magnetic Resonance in Medicine Annual Conference; Cape Town, South Africa

Aumer, K. & **Dennison, J.B.**,(2025) Perceived Threat as a Driver of Hate: Lessons from the 2024 U.S. Election in a Global Context,10th Conference of the Consortium of European Research on Emotion; Grenoble France

Dennison,J., Wiemken,A., Langham,M., Xu,J., Schwab,R., Wehrli,F., (2025)Quantitative MRI Mapping of Upper Airway Anatomy and Cerebral Oxygen Metabolism with Concurrent EEG in OSA Patients During Sleep in Scanner. The International Society for Magnetic Resonance in Medicine Annual Conference; Honolulu, HI

Dennison, J.B., Favilla, C., Lee, H., Langham,M., Wehrli, W.F. (2024), 3D Quantitative BOLD MRI in Patients with Unilateral Carotid Occlusion, The International Society for Magnetic Resonance in Medicine Annual Conference; Singapore

Dennison, J.B., Langham,M., Wehrli, W.F. (2024), Obstructive Sleep Apnea: Feasibility of Concurrent Evaluation of Neurometabolic Rate and Upper Airway Architecture During Sleep in the Scanner, The International Society for Magnetic Resonance in Medicine Annual Conference; Singapore

Wyngaarden,J.B, **Dennison, J.B.**, Zaff, O.*, Smith, D.V. (2023), Task-Dependent Functional Connectivity with the Cerebellum: Confounded by Nyquist Ghosting?, Organization for Human Brain Mapping; Montreal, Canada

Smith, D.V., **Dennison, J.B.**,Wyngaarden,J.B, Zaff, O.*, Fareri,D.(2023), Characterizing the Effects of Multiecho and Multiband Imaging on Corticostriatal Responses to Reward, Organization for Human Brain Mapping; Montreal, Canada

Dennison, J.B., Umar, F.*, Dachs, A.*, Smith, D.V. (2022), Reward-Dependent Corticostriatal Connectivity: A Meta-analysis of Psychophysiological Interactions, Society for Neuroeconomics Annual Conference, Arlington VA **Note: awarded "Poster Spotlight" presentation**

Zaff, O*., Sazhin, D., Wyngaarden, J.B., **Dennison, J.B.**, Vafiadis, A., Nguyen,A., Jarcho, J.M., Alloy, L., Chein, J., Fareri, D., & Smith, D.V. (2022),Individual differences in substance use associated with elevated temporoparietal junction responses to rewards shared with friends, Society for Neuroscience Annual Conference, San Diego CA

Sazhin, D., Dennison, J.B., Wyngaarden, J.B., Vafiadis, A., Zaff, O.*, Kahn, N.A., Collins, M., Nguyen, A., Kohli, I., Fareri, D., McCloskey, M., Jarcho,J.M., & Smith, D.V. (2022), Strategic Decisions in Bargaining Situations Are Associated with Activation in the Caudate, Society for Neuroscience Annual Conference, San Diego CA

Ludwig, R., **Dennison, J.B.**,Hackett, K., Giovanetti, T., Fareri and Smith, D.V. (2022), Older and Wiser? Young Adults and Seniors Respond Differently to Social Context in an Ultimatum Game, Society for Neuroeconomics Annual Conference, Arlington VA

Dennison, J.B. and Smith, D.V. (2021), Understanding How Individual Beliefs About Risk Contribute to Ambiguity Aversion, Society for Neuroeconomics Annual Conference Virtual

Dennison, J.B., Ng, T., Alloy,.L., Smith,D.V. (2019), Using corticostriatal networks to disentangle reward value and salience, Society for Neuroscience Annual Conference, Chicago, IL

Henniger, N.M., Kelly, V., Hackett, K., Fareri, S., Katta, L., Tepfer, L.J., Reek, C., Giovannetti, T., Beard, E.C., **Dennison, J.B.**, Muzekari, B., Desalme, D.F., Kinmartin, R., Lang.,A., Cipriaso, J.M., Hunter, E., Morrison, C., Smith, D.V., (2019), Age-related reductions in functional connectivity in social brain systems during an economic trust task, Society for Neuroscience Annual Conference, Chicago, IL

Chat, I. K. Y., Bart, C., **Dennison, J.B.**, Smith, D., Miller, G., Nusslock, R., & Alloy, L. (2021), Inflammatory Signaling and Corticostriatal Functional Connectivity to Anticipated Valence and Salience of Reward and Threat Stimuli: An Investigation in Depressed vs. Non-Depressed Young Adults. Biological Psychiatry, 89(9), S298-S299. Watanabe., N., Dennison, J.B., Delgado, M.R.(2018), Differential effects of acute stress on effort and reward sensitivity during decision making, Society for Neuroscience Annual Conference San Diego, CA

Konova, A.B., Lopez-Guzman, S., Uramanche A. A., **Dennison, J.B.**,Ross,S., Louie, K., Rotrosen, J., Glimcher, P. W. (2016), Week-to-week fluctuations in risky decision making track heroin use in treatment-seeking opioid users, Society For Neuroscience Annual Conference. Sandiego, CA

Lopez-Guzman, S.,Konova, A.B., Uramanche A. A., **Dennison, J.B.**,Ross,S., Louie, K., Rotrosen, J., Glimcher, P. W. (2016),Temporal discounting as an individualized computational marker of treatment trajectory for opioid use disorder, Society For Neuroscience Annual Conference. Sandiego, CA

Ellerson, P., **Dennison, J.B.**, Purring, A.(2014), Who Knows You Best. Association for Psychological Sciences Annual Conference. Washington, D.C.

Teaching Experience

2019-2022	**Neuroimaging: Image to Inference*, Sensation and Perception, Statistics in Psychology, Clinical Neuropsychology, Functional Neuroanatomy, Brain Matters** , Teaching Assistant	*Temple University*
Summer 2020	**Psychology and Neuroscience: Exploring Mind, Brain, and Behavior**, Instructor	*Temple University*
Fall 2016	**Introduction to Psychology**, Teaching Assistant	*New York University*
Spring 2013	**Statistics in Psychology**, Teaching Assistant	*Hawaii Pacific University*

Mentoring

Temple University   *Philadelphia, PA*
                                                                                   2018 - 2023

- Post-Graduate Researcher, Ori Zaff
- Undergraduate Researcher, Avi Dachs
- Undergraduate Researcher, Fatima Umar

Programming and Computational Tools

NEUROIMAGING

Data Structures: BIDS, heudiconv, NiBabel (python)
Visualization: FSLeyes, Nilearn (python), ImageJ
Preprocessing: fMRIprep (Docker), ANTsPy, TEDANA
Mass-univariate: fMRIB Software Library (FSL), Nilearn, nltools
Meta Analyses: NiMARE, Ginger-ALE, Seed-based D-mapping

STATISTICS

Frequentist Hypothesis Testing: linear mixed effects models, generalized linear models (lme4, statsmodels.api, scipy)
Bayesian Computational (hierarchical) Modeling, Markov Chain Monte Carlo (PyMC, STAN)
Machine Learning : SVM, LASSO, Convolutional Neural Nets (scikitlearn, pytorch)

GENERAL COMPUTING

Statistics Software: Python (Scipy, Numpy, Statsmodels, Seaborn), R, SAS, SPSS, JASP
Programming Languages: Bash, Python, Matlab, JavaScript, Latex
Development Tools: Git, Docker, Jupyter

Outreach & Professional Development

SERVICE AND OUTREACH

2018-2022	**TU Coding Outreach Group:**, Organizer and Peer Worker	*Philadelphia, PA*
2016-2017	**Graduate Student Association**, Committee Member	

DEVELOPMENT

Neuromatch Academy 2022:, Virtual: Summer seminar for computational neuroscience. Introduction and practicum for modeling, machine learning, dynamical systems, and reward learning with applications for neuroscience

Coastal Coding for Reproducible Neuroimaging: 2019, Miami, FL: Topical training in issues that affect the reproducibility of neuroimaging research (data acquisition, experimental methods, analyses, record keeping, reusability, and data sharing)

Peer Review

Human Brain Mapping (with advisor)
Cell Reports (with advisor)
Journal of Visual Experiments

Professional Memberships

Society for Neuroeconomics Student Member
Society for Neuroscience Student Member