JohnMark Edward Taylor

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Education

2015–2021 **Harvard University, Psychology Department, PhD**
Cognition, Brain and Behavior Track **(3.98/4.00 GPA)**
PhD Thesis: *Population Coding for Multiple Features in the Human Brain and Convolutional Neural Networks*
Advisor: Yaoda Xu

2009–2013 **Yale University, Bachelor of Arts**
Cognitive Science Major **(3.90/4.00 GPA)**
Honors: Phi Beta Kappa, magna cum laude, distinction in major, Psi Chi
Senior Thesis: *The Phylogeny of Willpower: Ego Depletion in Capuchin Monkeys*
Advisor: Laurie Santos

Professional Experience

2026 **AI Safety Fellow, Anthropic**

2021–2026 **Postdoctoral Research Scientist, Visual Inference Lab, Columbia University (P.I. Nikolaus Kriegeskorte)**

2021 **Autonomous Driving Intern, Motional**

2013–2015 **Lab Manager, Yale Human Neuroscience Lab (P.I. Gregory McCarthy)**

Publications

Sereno, A., & **Taylor, J.** (Eds.) (2027). *The Binding Problem in the 21st Century: Perspectives across Mind, Brain, and Machine*. Cambridge University Press. Forthcoming.

Taylor, J., Schütt, H., & Kriegeskorte, N. (2025). Framed RSA: Representational comparisons that honor both geometry and population-mean response preferences. *bioRxiv*, 2025.07.10.664257.

Xu, Y., Swinchoski, B., **Taylor, J.**, & Chun, M. (2025). Interactive shape and color representation in visual working memory for colored objects in the human occipitotemporal cortex. *Imaging Neuroscience*, *3*, IMAG.a.1049.

Taylor, J., & Xu, Y. (2024). Using fMRI to examine nonlinear mixed selectivity tuning to task and category in the human brain. *Imaging Neuroscience*, *2*, imag-2-00354.

Golan, T., **Taylor, J.**, Schütt, H., Peters, B., Sommers, R. P., Seeliger, K., … & Kriegeskorte, N. (2023). Deep neural networks are not a single hypothesis but a language for expressing computational hypotheses. *Behavioral and Brain Sciences*, *46*, e392.

Taylor, J., & Kriegeskorte, N. (2023). Extracting and visualizing hidden activations and computational graphs of PyTorch models with TorchLens. *Scientific Reports*, *13*(1), 14375.

Taylor, J., & Xu, Y. (2023). Comparing the dominance of color and form information across the human ventral visual pathway and convolutional neural networks. *Journal of Cognitive Neuroscience*, *35*(5), 816–840.

Taylor, J., & Xu, Y. (2022). Representation of color, form, and their conjunction across the human ventral visual pathway. *NeuroImage*, *251*, 118941.

Taylor, J., & Xu, Y. (2022). Identifying the neural loci mediating conscious object orientation perception using fMRI MVPA. *Cognitive Neuropsychology*, *39*(1–2), 64–67.

Shehzad, Z., **Taylor, J.**, & McCarthy, G. (2022). Localized and distributed representations of person knowledge for faces. *bioRxiv*, 2022.03.27.485948.

Taylor, J., & Xu, Y. (2021). Joint representation of color and form in convolutional neural networks: A stimulus-rich network perspective. *PLOS ONE*, *16*(6), e0253442.

Vaziri-Pashkam, M., **Taylor, J.**, & Xu, Y. (2019). Spatial frequency tolerant visual object representations in the human ventral and dorsal visual processing pathways. *Journal of Cognitive Neuroscience*, *31*(1), 49–63.

Taylor, J., Shehzad, Z., & McCarthy, G. (2016). Electrophysiological correlates of face-evoked person knowledge. *Biological Psychology*, *118*, 136–146.

Fellowships and Honors

2026 Symposium Organizer, Vision Sciences Society (one of six)
2023 Inductee, Sigma Xi Academic Honor Society
2022 NIH NRSA F32 Postdoctoral Research Fellowship ($198,000)
2020 Foundations of Human Behavior Fellowship ($5,000)
2019 Harvard Brain Science Initiative Young Scientist Travel Award ($2,000)
2019 Vision Sciences Society Student Travel Award ($500; one of 20 recipients)
2018 Harvard Mind, Brain, and Behavior Graduate Student Fellowship ($10,000)
2018 Barbara Ditmars Fellowship ($3,500)
2018 Bok Center Certificate for Distinction and Excellence in Teaching
2017 National Science Foundation Graduate Research Fellowship
2015 Sosland Family Graduate Fellowship (private, alternative source of financial aid 2015–2016 academic year, received via recommendation of Harvard Psychology Department)
2013 Richard B. Sewall Trophy (awarded to two students in residential college graduating class of 120 students for “Outstanding Scholarly Achievement and Creative Promise”)

2012 Psi Chi Summer Research Fellowship ($5,000; awarded to 14 students nationally)
2012 Richter Fellowship for Summer Research ($1,000)
2012 Yale Dean's Fellowship in the Sciences for Summer Research ($4,000; declined due to other funding)
2012 Editor-in-Chief of *Yale Review of Undergraduate Research in Psychology*
2011 Invitee to University of Pennsylvania Institute for Research in Cognitive Science Summer Workshop (one of 25 internationally)
2009 National Merit Scholar

Presentations

Taylor, J., & Karakose-Akbiyik, S. (2026). Reimagining the binding problem(s) for the 21st century. Symposium organized for the 26th annual meeting of the Vision Sciences Society. St. Pete Beach, FL.

Taylor, J., & Kriegeskorte, N. (2025). Framed RSA: honoring representational geometry and regional-mean response preferences. Poster presented at the 9th annual meeting of the Cognitive Computational Neuroscience Conference. Amsterdam, NL.

Taylor, J., & Kriegeskorte, N. (2025). Framed RSA: honoring representational geometry and regional-mean response preferences. Talk presented at the 25th annual meeting of the Vision Sciences Society. St. Pete Beach, FL.

Taylor, J., & Kriegeskorte, N. (2023). TorchLens: A Python package for extracting and visualizing hidden activations of PyTorch models. Poster presented at the 7th annual meeting of the Cognitive Computational Neuroscience Conference. Oxford, UK.

Taylor, J., & Kriegeskorte, N. (2023). TorchLens: A Python package for extracting and visualizing all hidden layer activations from arbitrary PyTorch models with minimal code. Talk presented at the 23rd annual meeting of the Vision Sciences Society. St. Pete Beach, FL.

Taylor, J., & Xu, Y. (2021). The relative coding strength of color and form in the human ventral visual pathway and convolutional neural networks. Poster presented at the 21st annual meeting of the Vision Sciences Society. St. Pete Beach, FL.

Taylor, J., & Xu, Y. (2020). Conjunctive coding of color and shape in convolutional neural networks. Poster presented at the 20th annual meeting of the Vision Sciences Society. St. Pete Beach, FL.

Taylor, J., & Xu, Y. (2019). Conjunctive coding of color and shape in convolutional neural networks. Poster presented at the 3rd annual meeting of the Cognitive Computational Neuroscience Conference. Berlin, DE.

Taylor, J., & Xu, Y. (2019). The coding of color, shape, and their conjunction across the human ventral visual system. Talk presented at the 19th annual meeting of the Vision Sciences Society. St. Pete Beach, FL.

Xu, Y., **Taylor, J.**, & Vaziri-Pashkam, M. (2018). Probing mixed selectivity with fMRI voxel analysis. Talk presented at the 18th annual meeting of the Vision Sciences Society. St. Pete Beach, FL.

Taylor, J., & Xu, Y. (2017). To bind or not to bind? Neural coding of color and shape. Talk presented at the 47th annual meeting of the Society for Neuroscience. Washington, DC.

Taylor, J., Vaziri-Pashkam, M., & Xu, Y. (2017). Effect of task on object category representations across human ventral, dorsal, and frontal brain regions. Poster presented at the 17th annual meeting of the Vision Sciences Society. St. Pete Beach, FL.

Taylor, J., Vaziri-Pashkam, M., & Xu, Y. (2016). Attention to object form modulates informational connectivity between dorsal and ventral visual streams. Poster presented at the 46th annual meeting of the Society for Neuroscience. San Diego, CA.

Shehzad, Z., **Taylor, J.**, & McCarthy, G. (2015). VATL contributes to biographical knowledge of faces via feedback to FFA. Poster presented at the 45th annual meeting of the Society for Neuroscience. Chicago, IL.

Professional Activities

Ad Hoc Reviewing: *Journal of Vision*, *Scientific Reports*, *iScience*, *Heliyon*, *Brain Structure and Function*, *Imaging Neuroscience*, NeurIPS, *PLOS Computational Biology*

Professional Society Membership: Society for Neuroscience, Vision Sciences Society, Cognitive Computational Neuroscience (CCN)

Open Source Software: TorchLens (package for extracting deep neural network activations), Dagua (directed graph visualization package)

Teaching Experience

2024 Neuromatch Summer Academy (content creator, NeuroAI track)
2023 Senior Thesis Mentor for Ranya Belmaachi
2020 Cognition, Brain, and Behavior Proseminar
2019 Psychology Departmental Proseminar
2019 Cognition, Brain, and Behavior Proseminar
2018 Windows Into the Structure of the Mind and Brain
2018 Introduction to Statistics for the Behavioral Sciences (Bok Center Certificate for Distinction and Excellence in Teaching)

Skills

Programming: Python, R, MATLAB, C, Linux, Bash scripting

Analysis Techniques: Deep Neural Networks, PyTorch, Bayesian Statistics, Support Vector Machines, Generalized Linear Model

Neuroimaging Packages: FSL, FreeSurfer