

Pamela J. Osborn Popp

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Education

- Sept. 25 2023 Ph.D. in Neuroscience
New York University, New York, NY
Graduate School of Arts and Science (GSAS), Center for Neural Science
Thesis title: A cognitive analysis of learning, teaching, and collaborating
Thesis advisor: Todd Gureckis, Department of Psychology
- May 18 2016 B.S. with High Honors in Neuroscience, Joint Minor in Mathematics and Computer Science
New York University, New York, NY
College of Arts and Science (CAS)
Dean's Scholar (full tuition merit-based scholarship), Presidential Honors Scholar
Senior Thesis: "Trial-and-error learning in reward-based decision-making." Advisor: Nathaniel Daw

Research Experience

- Jan. 2017 to Sept. 2023 Gureckis Lab, NYU Supervisor: Todd Gureckis, Ph.D.
• Use computational models of decision-making to study human learning and teaching behaviors
• Design online experiments (point-and-click games) for single and multiplayer
• Expertise in JavaScript, Python, HTML/CSS, SQL, Phaser 3
• Collect human behavioral data and perform data analysis and interpretation
• Program advanced AI algorithms and compare to human action selection patterns
- August 2016 to Jan. 2017 Ma Lab, NYU Supervisor: Weiji Ma, Ph.D.
• Programmed neural network to perform a perceptual judgment task
- January 2015 to May 2016 Rinzel Lab, NYU Supervisors: John Rinzel, Ph.D., James Rankin, Ph.D.
• Investigated psychophysical effects of stimulus perturbations on auditory streaming in humans
- January 2015 to May 2016 Daw Lab, NYU Supervisor: Nathaniel Daw, Ph.D.
• Applied reinforcement learning models and economic utility models to describe subject decision-making and learning behavior from collected GCNU behavioral experiment data
- January 2014 to May 2014 Gatsby Computational Neuroscience Unit (GCNU)
University College London Supervisor: Peter Dayan, Ph.D.
• Designed choice task investigating role of implicit and explicit information in decision-making
- Summers 2013, 2014 Macknik Laboratory of Behavioral Neurophysiology Supervisor: Stephen Macknik, Ph.D.
Barrow Neurological Institute, Phoenix, AZ
• Neurobiological research on epilepsy; performed immunohistology, confocal microscopy, stereology
• Cognitive research on emotion and attention, particularly change blindness due to arousal in film

Grants and Awards

- Fall 2016 to Present NYU GSAS MacCracken Fellowship
- Spring 2016 CAS Dean's Undergraduate Research Fund (DURF) Conference Travel Grant
- Fall 2015 to Spring 2016 Academic year 2015-2016 CAS Dr. Aston McLaughlin Research Scholar
- Fall 2015 CAS DURF grant awarded for independent project in Daw Lab
- Summer 2015 CAS DURF grant awarded for independent project in Rinzel Lab

Osborn Popp, P. J., Newell, B., Bartels, D., & Gureckis, T. M. (2023). Can cognitive discovery be incentivized with money? *Journal of Experimental Psychology: General*, (in revision).

Osborn Popp, P. J., & Gureckis, T. M. (2023). Helping and reciprocating in a sequential decision making task. *Proceedings of the Conference on Cognitive Computational Neuroscience*. DOI: 10.32470/CCN.2023.1677-0

Osborn Popp, P. J., Newell, B., Bartels, D., & Gureckis, T. M. (2022). Rule discovery performance unchanged by incentives. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 44.

Osborn Popp, P. J., Gureckis, T. (2020). Ask or Tell: Balancing questions and instructions in intuitive teaching. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 42.

Rich, A., **Osborn Popp, P.J.**, Halpern, D., Rothe, A., Gureckis, T., (2018). Modeling Second Language Learning from a Psychological Perspective. *Proceedings of the Thirteenth Workshop on Innovative Use of NLP for Building Educational Applications*.

Halpern, D., Tubridy, S., Wang, H., Gasser, C., **Osborn Popp, P.J.**, Davachi, L., Gureckis, T. (2018). Knowledge Tracing Using the Brain. *Educational Data Mining*.

Rankin, J., **Osborn Popp, P. J.**, and Rinzel, J. (2017). Stimulus Pauses and Perturbations Differentially Delay or Promote the Segregation of Auditory Objects: Psychoacoustics and Modeling. *Frontiers in Neuroscience*, 11, 198.

Leal-Campanario, R., Alarcon-Martinez, L., Rieiro, H., Martinez-Conde, S., Alarcon-Martinez, T., Zhao, X., LaMee, J., **Osborn Popp, P.J.**,... & Macknik, S.L. (2017). Abnormal Capillary Vasodynamics Contribute to Ictal Neurodegeneration in Epilepsy. *Scientific Reports*, 7(1), 1-14.

Presentations

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| August 2023 | Osborn Popp, P. J. , Newell, B. R., Bartels, D. M., Gureckis, T. M. 2023. "Can cognitive discovery be incentivized by money?" Talk presented by Todd Gureckis at the 12th Triennial Invitational Choice Symposium. Fontainebleau, France. |
| July 2022 | Osborn Popp, P. J. , Newell, B. R., Bartels, D. M., Gureckis, T. M. 2022. "Rule discovery performance unchanged by incentives." Talk presented at the Annual Meeting of the Cognitive Science Society. Toronto, Canada. |
| July 2021 | Osborn Popp, P. J. , Newell, B. R., Bartels, D. M., Gureckis, T. M. 2021. "The effect of economic incentives on the learning of novel categories." Recorded talk, Society for Mathematical Psychology. Virtual meeting. |
| July 2020 | Osborn Popp, P. J. , & Gureckis, T. M. 2020. "Ask or Tell: Balancing questions and instructions in intuitive teaching." Poster, Cognitive Science Society. Virtual meeting. |
| July 2019 | Osborn Popp, P. J. , & Gureckis, T. M. 2019. "Modeling Intuitive Teaching as Sequential Decision Making Under Uncertainty." Poster, Cognitive Science Society. Montreal, Canada |
| July 2019 | Gureckis, T. M., & Osborn Popp, P. J. 2019. "Modeling Intuitive Teaching using POMDPs." Talk presented by Todd Gureckis at Guided Playful Learning Workshop, Cognitive Science Society. Montreal, Canada |
| March 2019 | Osborn Popp, P. J. , & Gureckis, T. M. 2019. "Optimizing Learning using Machine Teaching." Talk, Society for Research in Child Development. Baltimore, MD |
| June 2018 | Rich, A., Osborn Popp, P.J. , Halpern, D., Rothe, A., Gureckis, T., 2018. "Modeling Second Language Learning from a Psychological Perspective." Poster, North American Chapter of the Association for Computational Linguistics, New Orleans, LA |
| May 2016 | Osborn Popp, P. , Kurth-Nelson, Z., Daw, N., Dayan, P. "Trial-and-Error Learning in Reward-Based Decision-Making." Poster, NYU Undergraduate Research Conference, New York, NY |
| February 2016 | Rankin, J., Osborn Popp, P. , Rinzel, J. "Promotion of Stream Segregation by Deviants and Distractors." Poster, Association for Research in Otolaryngology, San Diego, CA |

July 2015

Osborn Popp, P., Rankin, J., Rinzel, J. “Disturbances in the auditory scene: Auditory streaming response to perturbation.” Talk, NYU Diversity Summer Student Conference, New York, NY

August 2014

Osborn Popp, P., Costela, F., Di Stasi, L., Posey, C., Rieiro, H., Martinez-Conde, S., Macknik, S. “Arousal and Emotion in Film Cause Change Blindness.” Poster, Barrow Neurological Institute Summer Research Student Poster Presentation Day, Phoenix, AZ

Teaching

Falls 2017, 2019

Teaching assistant for Introduction to Neural Science (Undergraduate)

Professor: Tony Movshon, Ph.D.

- Taught two recitation sections of ~20 students per week based on lecture content
- Gave guest lectures on Language (2019) and Memory (2017)

Summers 2018, 2019,
2020, 2021

Instructor for Columbia University High School Program, School of Professional Studies

- Designed and independently taught three-week introductory neuroscience course for ~25 advanced high school students
- Prepared content and materials for lectures, discussions, assignments, and laboratories
- Developed interactive digital course material when teaching course virtually in 2020-21

Volunteer Work

Spring 2017 to 2018

Docent in the Discovery Garden at the Brooklyn Botanic Garden

- Guided exploration of life science concepts with children and families