

Exponent®
Engineering & Scientific Consulting

Aarit Ahuja, Ph.D.

Managing Scientist | User Sciences
Natick
+1-508-652-8584 | aahuja@exponent.com

Professional Profile

Dr. Aarit Ahuja is a computational neuroscientist with over 6 years of experience deploying machine learning tools to solve complex problems. His expertise involves developing data handling and analysis pipelines, statistical approaches to large datasets, and visualization. While his primary area of focus is in the life sciences, his past experiences and background span a wide variety of fields, ranging from clinical research to consumer electronics, user experience research, and more. At Exponent, Dr. Ahuja consults clients on machine learning and AI driven data analyses, large-scale data collection efforts, pharmaceutical advances, and research on battery aging and performance.

Prior to joining Exponent, Dr. Ahuja was a graduate research fellow at Brown University, where he studied the evolutionary bases of human cognitive abilities by carrying out comparative research with nonhuman primates. In this capacity, he developed novel methods for implementing functional, noninvasive magnetic resonance imaging (MRI) techniques for primates. This process involved solving a variety of engineering challenges (such as protoyping new equipment for use with primates in an MRI environment), as well as building unique data analysis methods to parse the highly multidimensional, multi-species data acquired from the scanner. Through his research, he showed that the process of mentally simulating potential future outcomes is associated with internal, visual representations of said simulations in visual cortices of the brain. Further, his research established rhesus macaques as a model organism for this cognitive phenomenon by demonstrating a striking overlap between the behavioral, computational, and neural bases of mental simulation between humans and monkeys. The implications of these discoveries are significant, with potential influence on brain computer interfaces and the development of therapies for patients with psychiatric conditions.

Aside from neuroscience, Dr. Ahuja has worked on research projects aimed at understanding user experiences in autonomous vehicles. Owing to these experiences, his technical expertise includes wearable technologies, virtual/augmented reality, time series analyses, and human computer interaction. He is well versed in Python (including machine learning tools such as tensor flow, pytorch, etc.), MATLAB, R, and SPSS.

Academic Credentials & Professional Honors

Ph.D., Neuroscience, Brown University, 2023

B.S., Neuroscience, Wesleyan University, 2023

John G. Peterson Pre-Doctoral Fellow, Brown University

Interactionist Cognitive Neuroscience Fellow, Carney Institute for Brain Sciences

George H. Acheson and Grass Foundation Prize, Wesleyan University

© 2026 Exponent, Inc. All Rights Reserved

Prior Experience

Lead Scientist, Walah Scientific, 2023

Research Fellow, The Conference Board, 2015

Professional Affiliations

Sigma Xi Honor Society

American Association for the Advancement of Science

Society for Neuroscience

Publications

Yusif Rodriguez, N., McKim, T., Basu, D., Ahuja, A., & Desrochers, T.M. (2023). “Monkey Dorsolateral Prefrontal Cortex Represents Abstract Visual Sequences During a No-Report Task”. The Journal of Neuroscience.

Ahuja A., & Yusif Rodriguez, N. (2022). “Is the Dorsolateral Prefrontal Cortex Actually Several Different Brain Areas?”. The Journal of Neuroscience.

Ahuja, A., Desrochers, T.M., & Sheinberg, D.L. (2022). “A Role for Visual Areas in Physics Simulations”. Journal of Cognitive Neuropsychology.

Desrochers, T.M., Ahuja, A., Maechler, M., Shires, J., Yusif-Rodriguez, N., & Berryhill, M. (2022). “Caught in the ACTS: Defining Abstract Cognitive Task Sequences”. Journal of Cognitive Neuroscience.

PRIME-DRE Consortium [including Ahuja, A.] (2021). "Toward next-generation primate neuroscience: A collaboration-based strategic plan for integrative neuroimaging". Neuron.

Ahuja, A., & Sheinberg, D.L. (2019). "Behavioral and Oculomotor Evidence for Visual Simulation of Object Movement”. Journal of Vision.

Tom, R.L., Ahuja, A., Maniates, H., Freeland, C.M., & Robinson, M.J.F. (2018). “Optogenetic Activation of the Central Amygdala Generates Addiction-Like Preference for Reward”. European Journal of Neuroscience.

Robinson, M. J. F., Fischer, A. M., Ahuja, A., Lesser, E. N., & Maniates, H. (2015). “Roles of Wanting and Liking in Motivating Behavior”. Current Topics in Behavioral Neurosciences.

Presentations

Ahuja A., Desrochers, T.M., & Sheinberg, D.L. (2022). “The neural bases of simulation in the primate brain”. Poster presented at the Gordon Neurobiology of Cognition Conference.

Ahuja, A., Desrochers, T.M., & Sheinberg, D.L. (2021). “The neural bases of simulation in the primate brain”. Poster presented at the Society for Neuroscience Annual Conference.

Ahuja A., & Sheinberg, D.L. (2019). “Cross species neural correlates of visual simulation”. Poster presented at the Society for Neuroscience Annual Conference.

Ahuja A., & Sheinberg, D.L. (2018). “Eye movements indicate use of mental simulation to assess future object movement”. Poster presented at the Vision Sciences Society Annual Conference.

Ahuja A., & Sheinberg, D.L. (2018). “Behavioral and oculomotor evidence for visual simulation of object movement”. Poster presented at the Gordon Neurobiology of Cognition Conference.

Freeland, C., Ahuja, A., Robinson, M.J.F. (2017). “Primed cues and optogenetic inhibition of the frontal cortex generate shifts in risky decision-making”. Poster presented at the National Center for Responsible Gaming Conference.

Ahuja A., & Robinson, M.J.F. (2016). “Primed cues and optogenetic inhibition of the frontal cortex generate shifts in risky decision-making”. Poster presented at the Society for Neuroscience Annual Conference.

Tom, R., Ahuja, A., Maniates, H., Robinson, M.J.F. (2015). “Optogenetic stimulation of the central amygdala generates addiction-like preference for reward despite adverse consequences”. Poster presented at the Society for Neuroscience Annual Conference.

Research Grants

R21 Exploratory/Developmental Research Grant Award, National Institutes of Health

Peer Reviews

Journal of Neuroscience