

Education

2014-2020	Ph.D.	Neuroscience Brown University, Providence, RI, USA
09/2016		Advanced Computational Neuroscience Course (aCNS) Bernstein Center for Computational Neuroscience Goettingen
08/2015		Methods in Computational Neuroscience (MCN) summer course Marine Biological Laboratory (MBL)
2013	M.Phil	Physiology, Development & Neuroscience University of Cambridge, Trinity College (UK) HHMI- Janelia Farm Graduate Program
2011	B.S.	Biomedical Engineering (<i>summa cum laude</i>) Neuroscience (Distinguished Major Program, Highest Distinction) University of Virginia
08/2006-06/2007		Biomedical Engineering Northwestern University

Positions

11/2020- present	Postdoctoral Fellow Averbeck Lab, Section on Learning & Decision-Making, NIH-NIMH Reinforcement learning in non-human primates and computational modeling of behavioral and neural data. Advisor: Dr. Bruno Averbeck
2014- 2020	Doctoral Candidate Sheinberg Lab, Department of Neuroscience, Brown University Neurobiological mechanisms of movement-shape associations during object recognition in humans and non-human primates. Advisor: Dr. David Sheinberg
2013 – 2014	Predoctoral IRTA NIH National Institute on Drug Abuse, Baltimore, MD Chemogenetics, optogenetics, and radio frequency targeting in the mouse brain to study goal-directed behaviors Advisor: Dr. Yeka Aponte
2011 – 2013	HHMI/University of Cambridge Graduate Student Wolpert Lab, University of Cambridge The effect of motor effort on a perceptual decision-making task. Hantman Lab, Janelia Research Campus The role of the pontine nuclei in a reaching and grasping task in rodents Advisors: Dr. Daniel Wolpert, Dr. Adam Hantman
2009 – 2011	Research Assistant Bertram Lab, Department of Neuroscience, University of Virginia Development of a novel catheter design for targeted drug delivery to treat chronic epilepsy

Assessment of Na⁺ channel expression and neural degeneration in epileptic rats.
Advisor: Dr. Edward Bertram

Summer 2009

Summer Research Assistant

Taylor Lab, Max-Planck Institute of Immunobiology & Epigenetics
Establishing a novel mouse model for early grade glioblastoma.
Advisor: Dr. Verdon Taylor

2008

Research Assistant

Walker Lab, Department of Biomedical Engineering, University of Virginia
Development of a technique for assessment of whole blood coagulation using ultrasound
Advisor: Dr. William Walker

Summer 2007

Physical Scientist

Ligler Lab, U.S. Naval Research Laboratory
Development of a conductance-based biosensor for flow-cytometry
Advisor: Dr. Frances Ligler

Grants & Academic Honors

08/2026	Simian Collective Young Investigator Award
09/2025	Co-Investigator R13 "10 Open Questions in NHP Systems Neuroscience Workshop"
05/2024	Center on Compulsive Behaviors Postdoctoral Fellowship Renewal
09/2023	NIH Systems Biology Scientific Interest Group Award
07/2023	Fellows Award for Research Excellence (FARE) (\$1500)
05/2023	Center on Compulsive Behaviors Postdoctoral Fellowship Renewal
05/2022	Center on Compulsive Behaviors Postdoctoral Fellowship (up to \$30,000 over 3 years)
07/2021	NIMH Three Minute Talk (TMT) Competition Finalist
08/2019	Best Poster, Brown University Neuroscience Graduate Program Retreat (\$300)
05/2019	Hyundai Incubation Grant (\$50,000 for lab)
11/2018	Hyundai Visionary Challenge (\$5,625 personal grant)
02/2016	Elected to Sigma Xi Honor Society
04/2015	National Defense Science & Engineering Graduate Fellowship (NDSEG, 3 yr. full support)
01/2015	NSF Temporal Dynamics of Learning Center Small Grant (\$2500 personal grant)
01/2014	Hertz Foundation Fellowship Finalist

Publications

Burk, DC. & Averbeck, BB. Consensus across limbic areas predicts motivational disengagement. (*in revision*). *bioRxiv*: 2026.07.28.741314; doi: <https://doi.org/10.64898/2026.07.28.741314>

Xuan, D., **Burk, DC.**, Bartolo, R., Li, X., Averbeck, B., Tang, H. Long-term learning induces plastic changes in frontostriatal circuits. (*submitted*). *bioRxiv*: <https://doi.org/10.64898/2026.06.24.734256>

Korom, M., **Burk, DC.**, Givens, T., Pine, D., Brotman, M., Haller, S., Averbeck, B., Leibenluft, E., Kircanski, K. Reward prediction error signaling as a neurocomputational correlate of co-occurring anxiety and depression in youth. (*in revision*) *PsyArXiv*: https://doi.org/10.31234/osf.io/a29e3_v1

Korom, M., **Burk, DC.**, ... , & Pine, D., Brotman, M., Haller, S., Averbeck, B., Leibenluft, E., Kircanski, K.. Frustration induction alters reward prediction error encoding in pediatric variability. (*in revision*) *PsyArXiv*: https://doi.org/10.31234/osf.io/ujqxc_v1

Rothenhoefer, K., Romac, M., Henderson, K., **Burk, DC.**, Costa, V. Dissociable effects of curiosity and hedonic valence on reinforcement learning. (*in revision*).

Kronemer, S. I., Gobo, V. E., Teves, J. B., **Burk, DC.**, Shahsavarani, S., Walsh, C. R., ... & Bandettini, P. A. (2025). Cross-species real time detection of trends in pupil size fluctuation. *Behavior Research Methods* 57 (1), 1-14.

- Burk, DC**, Taswell, C., Tang, H., Averbeck, BB. (2024) Computational mechanisms underlying motivation to earn symbolic reinforcers. *Journal of Neuroscience*, 44(24), e1873232024
- Burk, DC**, Averbeck, BB. Impulsive choice strategies can maximize rewards in uncertain decision-making environments. (2023) *PLOS Computational Biology*, 19(1), e1010873.
- Abend, R., **Burk, DC**, Ruiz, S., Gold, A., Napoli, J., Britton, J., Michalska K., Shechner, T., Winkler, A., Leibenluft, E., Pine, D., Averbeck, BB. (2022). Computational modeling of threat learning reveals links with anxiety and neuroanatomy in humans. *eLife*, 11, e66169. *These authors contributed equally
- Janssen, M., LeWarne, C., **Burk, DC** Averbeck, BB. (2022). Hierarchical Reinforcement Learning, Sequential Behavior, and the Dorsal Frontostriatal System. *Journal of Cognitive Neuroscience*, 1-19.
- Burk, DC** Sheinberg, DL. (2022) Neurons in inferior temporal cortex are sensitive to motion trajectory during degraded object recognition. *Cerebral Cortex Communications*, 3(3), tgac034.
- Desrochers, TM, **Burk, DC**, Badre, D, Sheinberg, DL. (2015). The monitoring and control of task sequences in human and non-human primates. *Frontiers in Systems Neuroscience*, 9(185). doi:10.3389/fnsys.2015.00185.
- Burk, D.**, Ingram, I., Franklin, D., Shadlen, M., Wolpert, D. (2014). Motor effort alters changes of mind in sensorimotor decision making. *PLoS One*, 9(3), e92681. doi:10.1371/journal.pone.0092681
- Nasir, M., Ateya, D., **Burk, D.**, Golden, J., Ligler, F. (2010). Hydrodynamic focusing of conducting fluids for conductivity based biosensors. *Biosensors and Bioelectronics*, 25(6), 1363-1369.

Invited Talks

10/2026	University of Florida Mathematics Biomath Seminar
09/2026	Simian Collective Conference
05/2026	The Future of NHP Brain Research Symposium, Princeton University
01/2026	Winter Conference on Brain Research: Bandits at Big Sky Panel
04/2024	Center for the Neural Basis of Cognition Postdoc Seminar Series, CMU/U.Pittsburgh
04/2024	IGSN/SFB Conference on Extinction Learning Ruhr-Universität Bochum
02/2024	Cosyne Workshop Co- Organizer and Speaker
02/2024	NIMH IRP Investigator Seminar Series Speaker
01/2024	NIH Systems Biology Scientific Interest Group Seminar
09/2023	Society for Neuroscience Nanosymposium Speaker
04/2023	NIH NIMH Julius Axelrod Symposium Speaker
01/2022	NIH ANGST Seminar Speaker
07/2017	EPSCoR Attention Consortium Meeting, Dartmouth College
07/2016	Gordon Research Seminar, Neurobiology of Cognition Conference

Teaching, Mentoring, and Leadership

06/2026	FAES Award for Excellence in Teaching: Outstanding New Course Design
04/2026-present	Reviewing Editor Springer Nature
10/2025-present	FAES Course Instructor: Foundations of Compulsive Behaviors
05/2024-10/2025	10Q in NHP Systems Neuroscience Workshop Co-Chair
06/2025	NIMH Management Short Course
03/2025-05/2025	Foundation for Advanced Education in the Sciences: Best Teaching Practices Course
10/2024	"Navigating the PhD" Virtual workshop co-host with Dr. Franziska Bröker
03/2022-present	NIMH Fellows Afternoon Neuroscience Seminar Series Co-Chair
11/2020-present	NIMH Fellows Committee
11/2020-present	Mentor for NIH postbaccalaureate and summer student trainees (6 trainees)
07/2021	Career Path Panel NSF EPSCoR
06/2020	Graduate School Q & A Panel for Brown undergraduates (Brown Virtual "Unconference")
07/2019-09/2020	Mentor for undergraduate student in Sheinberg lab

09/2016-09/2017 BGRIPS Mentoring Fellow (Brown University)
01/2015-05/2016 Experimental Neurobiology (NEUR1600) Teaching Assistant (Brown University)
03/2016 Brown University Brain Fair
11/2015-01/2016 Mentor for high school biology student in poster fair (Lincoln School, RI)
02/2015-06/2015 Algebra in Motion: Hope High School In-Class Physics Tutor (Providence, RI)
09/2014-09/2018 Ronald McDonald House of Providence Athlete, Volunteer (Providence, RI)