

**Education**

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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> ) GPA: 3.878 Neuroscience (Distinguished Major Program, Highest Distinction) University of Virginia
08/2006-06/2007		Biomedical Engineering      GPA: 3.917 Northwestern University

**Positions**

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11/2020- present	<b>Postdoctoral Fellow</b> 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	<b>Doctoral Candidate</b> 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	<b>Predoctoral IRTA</b> NIH National Institute on Drug Abuse, Baltimore, MD Designing of a new method for targeting molecularly-defined neuronal populations in the mouse brain to study goal-directed behavior Advisor: Dr. Yeka Aponte
2011 – 2013	<b>HHMI/University of Cambridge Graduate Student</b> 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	<b>Research Assistant</b> 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<sup>+</sup> 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**

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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, 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

**Invited Talks**

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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 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

**Publications**

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**Burk, DC.** & Averbek, BB. Coordination of neural activity across the limbic system predicts motivational state. (*in prep*)

- Korom, M., **Burk, DC.**, ... , & Pine, D., Brotman, M., Heller, S., Averbeck, B., Leibenluft, E., Kircanski, K.. Frustration induction alters reward prediction error encoding in pediatric variability. (*under review at Biological Psychiatry:CNNI*)
- 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.

## **Teaching, Mentoring, and Leadership**

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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)