HANNAH WIRTSHAFTER

Curriculum vitae – updated September 7, 2021

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EDUCATION & TRAINING

2021 – present **Post-doctoral scholar**

2019 – 2021 **NRSA Post-doctoral fellow**
Northwestern University, Chicago, IL
Department of Neuroscience
Supervisor: Dr. John Disterhoft

2012 – 2019 **PhD in Biology**
Massachusetts Institute of Technology, Cambridge, MA
Picower Institute for Learning and Memory
Adviser: Dr. Matt Wilson

2008 – 2012 **BS in Biological Sciences,** Minor in Biomedical Engineering
Carnegie Mellon University, Pittsburgh, PA
Phi Beta Kappa

DISSERTATION

2019 Adviser: Dr. Matt Wilson
Dissertation title: Neural correlates of locomotion, cues, and context in the interactions between hippocampus and lateral septum.
Thesis Committee: Dr. Troy Littleton, Dr. David Page, Dr. Bence Olveczky

HONORS & AWARDS

2019 Society for Neuroscience 'Hot Topic'
2017 AAAS/*Science* Program for Excellence in Science
2012 Phi Beta Kappa Honor Society
2012 Phi Kappa Phi Honor Society
2012 Graduated with College and University Honors
2006 National Merit Scholarship

FUNDING

2019 – present NRSA Training Grant

2014 – 2017	National Defense Science & Engineering Graduate Fellowship (NDSEG), *Three year full graduate fellowship*
2012	Howard Hughes Medical Institute (HHMI) Undergraduate Research Award
2011	Howard Hughes Medical Institute (HHMI) Undergraduate Research Award
2011	NSF Research Experience for Undergraduates (REU) Recipient
2010	NSF Research Experience for Undergraduates (REU) Recipient
2008 – 2012	Judith Resnik-Challenger Merit Scholarship *Half tuition merit scholarship for women in STEM*

MEMBERSHIPS

American Association for the Advancement of Science (AAAS)
Society for Neuroscience

PROFESSIONAL EXPERIENCE

Preprint editor	Open Biology
Reviewer for	Behavioural Brain Research
	Bio-protocol
	Journal of Neuroscience Research
	Neuroscience and Biobehavioral Reviews
	Physiology and Behavior
	PLOS Computation Biology

TEACHING EXPERIENCE

Spring 2017	**9.24 Disorders & Diseases of the Nervous System, Teaching Assistant,** MIT. Faculty Instructor: Dr. Mriganka Sur
Fall 2016	**7.65/9.015 Molecular & Cell Neuroscience I, Teaching Assistant,** MIT. Faculty Instructor: Dr. Troy Littleton
Summer 2014	**Center for Brains, Minds, and Machines, Summer Course,** Marine Biological Laboratory, Woods Hole
2014	**"Deep Dive" Instructor,** MIT Created in-depth supplemental neuroscience videos for undergraduate classes
Fall 2013	**7.016 Introductory Biology Teaching Assistant,** MIT. Faculty Instructors: Dr. David Page, Dr. Angelika Amon, Dr. Barbara Imperiali
Fall 2011	**Genetics Teaching Assistant,** Carnegie Mellon University. Faculty Instructors: Dr. Aaron Mitchell, Dr. Javier Lopez

ADDITIONAL RESEARCH EXPERIENCE

2009 – 2012	**Howard Hughes Medical Institute (HHMI) Biology Research Assistant,** Dr. Alison Barth, Carnegie Mellon University, Pittsburgh, PA

	(Supported by Howard Hughes Medical Institute research award)
2011	**Research Experience for Undergraduates (REU) Zoology Research Assistant,** Dr. Rüdiger Bieler, The Field Museum of Natural History, Chicago, IL
2009 – 2010	**Research Experience for Undergraduates (REU) Biomedical Engineering Research Assistant,** Dr. Michael Cho, University of IL at Chicago, Chicago, IL
2008 – 2009	**Howard Hughes Medical Institute (HHMI) Phage Genomics Research Program,** Carnegie Mellon University, Pittsburgh, PA
2005 – 2006	**Mesoscopic Physics Internship,** Northwestern University, Evanston, IL
2005	**Neuroscience/Biology Research Assistant,** University of IL at Chicago, Chicago, IL

ACADEMIC MENTORING

2020 – present	Kent Park, Northwestern Biological Sciences Undergraduate Student
2017– 2019	Molly Quan, Wellesley Neuroscience Undergraduate Student *Currently a laboratory technician at Massachusetts General Hospital*
2017	Nathan Huffman, MIT Course 2 Undergraduate Student
2016	Yoon Ji Lee, Wellesley Neuroscience Undergraduate Student
2015– 2017	Israel Ridgley, MIT Course 6 Undergraduate Student *Currently a PhD student at Northwestern University*

INVITED TALKS

July 2020	**University of New South Wales Sydney,** Neuroscience Group Meeting
April 2020	**Tufts University,** Applied Math Class *(canceled because of Covid-19)*
December 2018	**University of Chicago,** Systems Neuroscience Group Meeting
November 2018	**Northwestern University,** Behavioral Neuroscience Group Meeting
November 2018	**MIT**, Molecular & Cellular Neuroscience Student Symposium
February 2017	**MIT**, Plastic Lunch Neuroscience Meeting

POSTER PRESENTATIONS

Wirtshafter, H.S. & Disterhoft, J.F. "*In vivo* multi-day calcium imaging of hippocampus in freely moving rats." Poster, Society for Neuroscience Annual Meeting (2021).

Song E., Alpers A., Warner, K. Schatza M., **Wirtshafter H.S.**, Weiss C., Disterhoft J., Voss J., Widge A. "Effects of closed-loop phase-locked stimulation on cortico-hippocampal connectivity in rats." Poster, Society for Neuroscience Annual Meeting (2021).

Wirtshafter, H. S. & Wilson M. A. "Differences in reward biased spatial representations in the lateral septum and hippocampus." Poster, Society for Neuroscience Annual Meeting (2021).

Wirtshafter, H. S. & Wilson M. A. “Neural correlates of locomotion, cues, and context in the interactions between hippocampus and lateral septum.” Poster, Society for Neuroscience Annual Meeting, Chicago, IL. (2019).
Selected as SfN ‘Hot Topic’

Wirtshafter, H. S. & Wirtshafter, D. “Conditioning and sensitization of dopamine antagonist effects on open field activity.” Poster, Society for Neuroscience Annual Meeting, Chicago, IL. (2015).

Wirtshafter, H. S. "Cortical Response to Cold and Menthol Stimulation in Mouse." Carnegie Mellon University. Pittsburgh, PA. (2012).

Wirtshafter, H. S. “Flexing our Mussels: Comparative Bivalve Gill Morphology.” The Field Museum of Natural History. Chicago, IL. (2011).

Wirtshafter, H. S. “Effect of Fabricated Microscale Features on Human Mesenchymal Stem Cell Behavior.” University of IL at Chicago. (2010).

PUBLICATIONS

Tool and Library Development

Wirtshafter, H.S. & Wilson, M.A. Bayesian Algorithmic Decoding of Acceleration and Speed Software (BADASS) v1.0 https://codeocean.com/capsule/5522897/tree/v1 (2021)

Wirtshafter, H.S. Electrophysiology Analysis Library. hsw28/data_analysis: HSW Analysis code v1.0 Zenedo. http://doi.org/10.5281/zenodo.3597777 (2020).

Hale, G. & **Wirtshafter, H. S.** ARTE (Almost Real Time Electrophysiology) Hardware. hsw28/arte-hardware: Arte Hardware. Zenodo. http://doi.org/10.5281/zenodo.3596963 (2020).

Hale, G. & **Wirtshafter, H. S.** ARTE (Almost Real Time Electrophysiology) Backend Software. wilsonlab/arte-backend v1.0 Zenodo. http://doi.org/10.5281/zenodo.3262886 (2019).

Other Contributions

Wirtshafter, H. S. "Triplodon corrugatus Lamarck, 1819." Encyclopedia of Life. National Museum of Natural History, Smithsonian. (2011).

“Mycobacterium Phage Island 3 Complete Genome.” GenBank. Aug. 18 (2010).

Peer-reviewed

Wirtshafter, H. S. & Wilson, M. A. Bayesian Algorithmic Decoding of Acceleration and Speed Software (BADASS). *Software Impacts:* 100125. In Press.

Wirtshafter, H. S. & Wilson, M. A. “Lateral Septum as a Nexus for Mood, Motivation, and Movement.” *Neuroscience & Biobehavioral Reviews*: Volume 126, 544-559, (2021).

Wirtshafter, H. S., Quan, M., & Wilson, M. A. “Dissociating Behavior and Spatial Working Memory Demands Using an H Maze.” *Bio-protocol* 11(5): e3947, (2021).
Selected for cover image

Wirtshafter, H. S. & Wilson, M. A. “Differences in reward biased spatial representations in the lateral septum and hippocampus.” *Elife.* 9. E55252, (2020).

Wirtshafter, H. S. & Wilson, M. A. “Locomotor and Hippocampal Processing Converge in the Lateral Septum.” *Current biology: CB* 29, 3177-3192 e3173, (2019).

Pope, W. H., […] **Phage Hunters Integrating Research and Education** […], et al. “Whole genome comparison of a large collection of mycobacteriophages reveals a continuum of phage genetic diversity.” Elife. 4, e06416 (2015). (**member of the Phage Hunters team**)

Pope, W. H., […] **Wirtshafter, H. S.** […], et al. “Expanding the Diversity of Mycobacteriophages: Insights into Genome Architecture and Evolution.” PLoS One. 6 (1), e16329 (2011).

Under review
Wirtshafter, H. S. & Disterhoft, J. F. In Vivo Multi-Day Calcium Imaging of CA1 Hippocampus in Freely Moving Rats Reveals a High Preponderance of Place Cells and No Detectable Photobleaching. *Preprint: https://www.biorxiv.org/content/10.1101/2021.08.17.456533v1*

MEDIA COVERAGE

“Like a treasure map, brain region emphasizes reward location,” MIT News, http://news.mit.edu/2020/treasure-map-brain-region-emphasizes-reward-location-0623
picked up by multiple additional news outlets

“Study finds hub linking movement and motivation in the brain,” MIT News, http://news.mit.edu/2019/study-finds-hub-linking-movement-and-motivation-brain-0919
also published on NeuroscienceNews.com, MedicalXpress.com, and more
selected as an SfN “Hot Topic”

Profiled in the book *Why We Dream: The Transformative Power of Our Nightly Journey* by Alice Robb, 2018