

# Mitchell B Slapik

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## Education

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2027	McGovern Medical School, <i>Houston, TX</i> Medical Scientist Training Program	MD
2025	Graduate School of Biomedical Sciences <i>Houston, TX</i> , Neuroscience	PhD
2017	Johns Hopkins University, <i>Baltimore, MD</i> Post-Baccalaureate Premedical Program	
2014	Swarthmore College, <i>Swarthmore, PA</i> With High Honors in Philosophy and Linguistics	BA
2013	University of Oxford, <i>Oxford, UK</i> Study Abroad: Philosophy of Mind	

## Publications

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2025	R. Milton*, <b>M. Slapik*</b> , S. Egranov, et. al. "Locomotor Activity Enhances Visuo-frontal Communication during Environment Exploration." Under review at Nature Neuroscience.  <b>M. Slapik</b> , H. Shouval. "Simulated Complex Cells Contributes to Object Recognition through Representational Untangling." Neural Computation.  <b>M. Slapik</b> . "Computational Evidence for an Inverse Relationship between Brain and Retinal Complexity." Journal of Vision.
2022	M. Joyce, P. Nadkarni, S. Kronemer, [...], <b>M. Slapik</b> , et. al. "Quality of Life Changes Following the Onset of Cerebellar Ataxia: Symptoms and Concerns Self-reported by Ataxia Patients and Informants." Cerebellum.
2020	O. Morgan., <b>M. Slapik</b> , K. Iannuzzelli, et. al. "The Cerebellum and Sequencing in Motor and Cognitive Domains: Evidence from Cerebellar Ataxia." Cerebellum.  S. Kronemer, <b>M. Slapik</b> , J. Pietrowski, et. al. "Neuropsychiatric Symptoms as a Reliable Phenomenology of Cerebellar Ataxia." Cerebellum.

2018 **M. Slapik**, S. I. Kronemer, O. Morgan, et. al. "Visuospatial Organization and Recall in Cerebellar Ataxia." *Cerebellum*.

## Presentations

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### Talks

2024 **M. Slapik**. "Retinal Complexity Varies Inversely with Brain Complexity in a Computational Model." Post-candidacy Talk at Fall Neuroscience Retreat for UTHealth. Houston, TX.

2023 **M. Slapik**, H. Shouval. "Unshattering Dimensionality." Post-candidacy Talk at Fall Neuroscience Retreat for UTHealth. Cleveland, TX.

2022 **M. Slapik**, Andrei, S. Khan, et al. "Optimal Stimuli as a New Method to Investigate Neural Networks." Pre-candidacy Talk at Fall Neuroscience Retreat for UTHealth. Cleveland, TX.

2018 O. Morgan, **M. Slapik**, K. Iannuzzelli, et al. "Motor and Cognitive Sequencing in Cerebellar Ataxia." Hot Chair Talk. National Ataxia Foundation's 9th Ataxia Investigators Meeting. Virtual.

O. Morgan, **M. Slapik**, S. Kronemer, et al. "Motor-cognitive Multitasking in Cerebellar Ataxia." Presentation to the faculty and staff of the Johns Hopkins Ataxia Clinic, Baltimore, MD.

**M. Slapik**, O. Morgan, J. Creighton, et. al. "Timing and Sequencing in Cerebellar Ataxia." Nanosymposium talk accepted for presentation at: Society for Neuroscience San Diego, CA.

O. Morgan, J. Creighton, **M. Slapik**, et. al. "Neural correlates of value-driven attentional capture in addiction." Nanosymposium talk accepted for presentation at: Society for Neuroscience, San Diego, CA.

**M. Slapik**, O. Morgan, C. Marvel. "Language Abilities in Cerebellar Ataxia." Presentation to the faculty and staff of the Johns Hopkins Ataxia Clinic, Baltimore, MD.

2017 **M. Slapik**, S. Kronemer, O. Morgan, et. al. "Visuospatial Organization and Recall in Cerebellar Ataxia." Talk presented at: Sensorimotor Day, Johns Hopkins University, Baltimore, MD.

## Posters

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- 2025 J. Kim, M. Franch, **M. Slapik** et al. "Flexible V4-dIPFC communication enhances context-appropriate visual encoding in dIPFC." Society for Neuroscience. San Diego, CA.
- X. Niu, **M. Slapik**, A. McConnell et al. "Executive regions encode movement through multiplexing and visual subspace modulation." Society for Neuroscience. San Diego, CA.
- 2024 **M. Slapik**, X. Niu, A. McConnell, et al. "Executive Regions Encode Movement of Individual Body Parts in Macaque Monkeys." Society for Neuroscience. Chicago, IL.
- S. Egranov, R. Milton, **M. Slapik**, et al. "Communication between Visual and Executive Areas is Improved Post-locomotion in Rhesus Macaques." Society for Neuroscience. Chicago, IL.
- M. Slapik**, H. Shouval. "The Visual System Relies on Organized but Low-Dimensional Representations for Object Recognition." Spring Neuroscience Retreat for UTHealth, Houston, TX.
- 2023 S. Egranov, R. Milton, **M. Slapik**, et al. "Influence of Intracortical Microstimulation on Synaptic Efficacy between Visual and Executive Cortical Areas in Macaques." Society for Neuroscience. Washington, D.C.
- S. Khan, A. Andrei, **M. Slapik**, et al. "Optogenetic Control of Inhibitory Neurons in Macaque Visual Cortex." Society for Neuroscience. Washington, D.C.
- M. Slapik**, A. Andrei, S. Khan, et al. "A Deep Learning Approach to Naturalistic Surround Modulation." Society for Neuroscience. Washington, D.C.
- S. Khan, A. Andrei, **M. Slapik**, et al. "Inhibitory Control of Up and Down Cortical States during Sleep." Spring Neuroscience Retreat for UTHealth, Houston, TX.
- 2022 **M. Slapik**, A. Andrei, S. Khan, et al. "Deep Networks Design Optimal Stimuli for Early Visual Cortex." Society for Neuroscience. San Diego, CA.
- 2020 **M. Slapik**, S. Patwardhan, R. Costa, et al. "Using Machine Learning To Classify Feeding Behavior in Aplysia." American Physician Scientists Association. Houston, TX.

- 2019 O. Morgan, **M. Slapik**, S. Kronemer, et al. "Motor-Cognitive Multitasking in Machado-Joseph's Disease." The International MJD Research Conference, Washington, DC.
- 2018 E. Hill, **M. Slapik**, O. Morgan, et al. "Abstract Thinking in Cerebellar Ataxia." Poster at: Iowa Neuroscience Institute Workshop, Cerebellum in Bipolar Disorder and Other Neuropsychiatric Diseases, Iowa City, IA.
- C. Marvel, J. Creighton, O. Morgan, **M. Slapik**, et al. "Cerebro-Cerebellar Contributions to Working Memory in Early Lyme Disease." International Society of Behavioral Neuroscience, Anchorage, AK.
- O. Morgan, **M. Slapik**, S. Kronemer, et al. "Motor-cognitive Multitasking in Cerebellar Ataxia." The National Ataxia Foundation's 8<sup>th</sup> Ataxia Investigator's Meeting, Philadelphia, PA.
- M. Slapik**, J. Pietrowski, O. P. Morgan, et al. "A Characterization of Language Impairment in Cerebellar Ataxia." The National Ataxia Foundation's 8<sup>th</sup> Ataxia Investigator's Meeting. Philadelphia, PA.
- C. Marvel, J. Creighton, O. Morgan, **M. Slapik**, et al. "Cerebro-Cerebellar Contributions to Working Memory in Early Lyme Disease." Society for Neuroscience, San Diego, CA.
- 2017 **M. Slapik**, S. Kronemser, J. Mandel, et al. "Visuospatial Processing and Strategy Formation in Cerebellar Ataxia." Society for Neuroscience, Washington, D.C.

## Work

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- 2021 – Now **Graduate Research Assistant, Dragoi Lab**  
McGovern Medical School, *Houston, TX*  
Investigate how the brain processes visual information
- Design optimal stimuli for neurons in visual cortex using an image generator and optimizer
  - Analyze communication subspaces between brain areas and how they transform based on brain state
- 2016 - 2019 **Research Assistant, Marvel Lab**  
Johns Hopkins Medical School, *Baltimore, MD*  
Examined the cognitive and emotional effects of cerebellar ataxia
- Designed new cognitive tasks assessing visuospatial skills, gestalt processing, sequence learning and verbal encoding
  - Administered cognitive tasks, emotional questionnaires and motor tests to ataxia patients and controls

## Volunteering

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- 2021 – Now    **Volunteer Counselor**  
Crisis Text Line, *Houston, TX*
- Provide counseling to callers on the crisis line experiencing thoughts of suicide and self-harm
  - Refer to personalized resources on depression, anxiety, substance use disorder, and gender/sexual identity
- 2021 – Now    **Shadowing, Department of Psychiatry**  
UTHealth, *Houston, TX*
- Work with a team of psychiatrists, residents and social workers treating patients with a variety of psychiatric disorders
- 2017 – 2019    **Team Leader, Health Resource Coordinator**  
Charm City Clinic, *Baltimore, MD*
- Assisted clients with a variety of challenges related to medical care, employment, and housing
  - Trained a new group of volunteers
- 2016 – 2019    **Shadowing, Parkinson's Neuropsychiatric Clinic**  
Johns Hopkins Medicine, *Baltimore, MD*
- Shadowed a psychiatrist treating Parkinson's disease, including psychiatric, cognitive and motor symptoms
- 2015 – 2016    **Emergency Room Volunteer**  
Penn Presbyterian Medical Center, *Philadelphia, PA*
- Took incoming calls, paged nurses, restocked supplies, and observed procedures
- 2015 – 2016    **Front-Desk Volunteer**  
Washington West Project, *Philadelphia, PA*
- Enrolled patients for STD screening and counseling

## Service

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### Mentoring

Xiaoke Niu, Jaehwan Kim, Joey Zambelas, Madeline Gomez

### Reviewing

Scientific Reports, Frontiers in Computational Neuroscience, Cerebellum

## Awards

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2024	<b>Osborne Endowed Scholarship in the Neurosciences</b> Department of Neurobiology and Anatomy, McGovern Medical School
	<b>Dean's Research Scholarship</b> McGovern Medical School
2023	<b>George M. Stancel Fellowship in the Biomedical Sciences</b> McGovern Medical School
	<b>Osborne Endowed Scholarship in the Neurosciences</b> Department of Neurobiology and Anatomy, McGovern Medical School
	<b>National Research Service Award (F30)</b> National Institutes of Health: National Eye Institute
	<b>Best Work-In-Progress Talk</b> Department of Neurobiology and Anatomy, McGovern Medical School
2022	<b>Clinical and Translational Science Predoctoral Fellowship (TL1)</b> National Institutes of Health: National Center for Advancing Translational Sciences
	<b>Osborne Endowed Scholarship in the Neurosciences</b> Department of Neurobiology and Anatomy, McGovern Medical School
2018	<b>Travel Award</b> for 8 <sup>th</sup> Annual Ataxia Investigator's Meeting The National Ataxia Foundation
2014	<b>High Honors</b> in Philosophy and Linguistics Swarthmore College Honors Program
2009	<b>National Merit Semifinalist</b> National Merit Scholarship Program

## Certificates

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2023	<b>Machine Learning Specialization</b> Stanford University (Coursera)
	<b>Deep Learning Specialization</b> deeplearning.ai (Coursera)

## Organizations

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2017 - Now     Society for Neuroscience

2017 - 2019     National Ataxia Foundation

## Skills

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**Electrophysiology:** Acute and chronic recording

**MRI:** Structural scans

**Eye-Tracking:** Eyelink

**Data analysis:** Matlab, Python, SPSS

**Machine Learning:** Matlab, Python

**Task Development:** E-Prime, PsychToolbox, MonkeyLogic

## Languages

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**English:** Fluent

**Spanish:** Basic

## Hobbies

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**Jazz Saxophone**

The Chirp Chirps, Bayou City Funk

**Machine Learning Journal Club**

Leadership Committee

**Classical and Jazz Piano**