# Matthew Murawski

Neuroscience & Computer Science Graduate | Health Sciences Research Fellow
murawskim@pitt.edu | (908) 798-2157
matthew-murawski.github.io/

## Profile

Highly motivated graduate from the University of Pittsburgh (B.S. Neuroscience), combining extensive research in primate electrophysiology with hands-on experience in direct patient care. Skilled in quantitative data analysis, experimental design, scientific communication, and essential clinical support.

## Education

**University of Pittsburgh, Pittsburgh, PA** Graduated: April 2025
Bachelor of Science, Frederick Honors College Joint Degree
Major: Neuroscience
Minors: Computer Science, Chemistry
Certificate: Conceptual Foundations of Medicine

## Clinical Experience

**Patient Care Technician, 4 North PCU** UPMC Passavant Hospital — August 2025 - Present

- Collect diagnostic data by performing phlebotomy, 12-lead EKGs, bladder scans, and blood glucose monitoring.
- Ensure patient safety and comfort by providing direct personal care, assisting with activities of daily living (ADLs), and responding to immediate needs.
- Document patient care in the EHR and immediately communicate critical findings to the nursing team.

## Research Experience

**Health Sciences Research Fellow, Zhao Lab** University of Pittsburgh — September 2025 - Present

- Design and build experimental apparatuses for conducting chronic electrophysiological recordings in frontal cortex of free-moving marmoset monkeys, and simultaneous audio recording
- Analyze the role of frontal cortex in marmoset vocal communication using single-unit and local field potential (LFP) analysis in MATLAB
- Assist in planning of surgical procedures for implantation of chronic electrode microarrays in the marmoset

**Research Assistant, Herman Lab** University of Pittsburgh — May 2023 – August 2025

- Independently conducted visual attention experiments on non-human primates (NHPs)
- Performed multi-contact electrophysiological recordings during covert visual attention and saccade tasks in superior colliculus (SC), substantia nigra pars compacta (SNc), and lateral geniculate nucleus (LGN)
- Analyzed data from multi-contact electrodes using computational techniques in MATLAB
- Designed and fabricated 3D printed components for experimental setups using AutoCAD and Nexa3D software

## Senior Thesis

**"Independent Encoding of Salience, Value, and Attention in Primate Superior Colliculus"**

- Recorded 220 superior colliculus (SC) neurons in macaques performing a spatially cued covert change detection task and a saccade task that varied reward value and salience.
- Investigated how SC activity is modulated by physical salience, reward, and attention cues.
- Findings complicate the unified priority map model, potentially suggesting that independent modulatory influences support context-specific visually guided behaviors.

## Presentations

- **Poster Presentation, COSYNE 2025**
  *Independent Encoding of Salience, Value, and Attention in Primate Superior Colliculus*
  View Abstract/Details
- **Talk Presentation, VSS 2025 (Attention: neural mechanisms)**
  *Independent Encoding of Salience, Value, and Attention in Primate Superior Colliculus*
  View Abstract/Details

## Awards

- Neuroscience Research Excellence Award, University of Pittsburgh ($250)
- COSYNE Presenters' Travel Grant ($500)
- VSS Presenters Grant ($1000)
- University of Pittsburgh Merit Scholarship ($60,000)

## Teaching Experience

**Teaching Assistant, Speaking of Science** University of Pittsburgh — Spring 2025

- Assisted in course instruction, helped create class materials, met with students before each presentation, and oversaw class presentations with Drs. Judy Cameron and Susan Sesack.

**Teaching Assistant, Intro to Biology 1** University of Pittsburgh — Fall 2022

- Supported course instruction and tutored students with Dr. Lesley Ashmore.

## Technical Skills

- **Computational:** Proficient in Python, MATLAB, R, Java, SQL, and Unix/Linux for statistical modeling, spike train analysis, and data visualization.
- **Experimental:** Skilled in multi-contact electrophysiology in non-human primates and fabricating custom 3D-printed experimental hardware (AutoCAD, Nexa3D).
- **Communication & Design:** Experienced with scientific writing and presentation, with strong proficiency in Adobe Creative Suite (Illustrator, Photoshop).