






Daniel Pollak

13 Bronson Ave. Scarsdale, NY 10583 
+1 (914) 318-8989 
danpollak23@gmail.com 
<https://www.linkedin.com/in/danpollak23> 
danpollak.com 

I am a neuroscientist who likes to design custom electrophysiology techniques and rigs for unusual organisms. I like to learn about math, ML, and electronics, and I aim to make sci-comm central to my research.

Education

MAY 2019

B.S., Neuroscience; Computer Science minor / University of Massachusetts, Amherst

Thesis: "Lateral Inhibition in Zebra Finch Auditory Processing Using a Novel Apparatus for Electrophysiology"
GPA: 3.87, graduated summa cum laude

Research Experience

1 JUNE 19 – 15 JULY 19

Senior Research Fellow/ Backyard Brains, Munich, Germany and Belgrade, Serbia

Advisor: Dr. Étienne Serbe

Designed a low-cost, DIY setup for recording electroretinograms in various insects at the Max Planck Institute in Munich, Germany, and at the Center for the Promotion of Science in Belgrade. This is an ongoing project to develop a citizen science initiative for bringing non-scientists to the cutting edge of insect neuroscience and ecology. Presented findings at FRM 2019.

20 MAY 18 – 1 AUGUST 18

Summer Research Fellow/ Backyard Brains, Ann Arbor

Advisor: Dr. Gregory Gage and Dr. Étienne Serbe

Developed a low-cost, DIY technique for recording electromyograms in mantis shrimp and other arthropods. Published a technical paper on a laboratory exercise using this technique in mantis shrimp, crickets, and cockroaches. Presented findings at FRM 2019, the Munich Science Slam, Petnica Science Summer School, and at the Max Planck Institute for Neurobiology. More information is available [online](#).

2015 – ONGOING

Research Assistant / University of Massachusetts, Amherst

Advisor: Dr. Luke Remage-Healey

Zebra finch microdrive (2017-ongoing)

Designed PCBs and components for a lightweight, low cost, and simple drivable electrode array (microdrive) for zebra finches (*Taeniopygia guttata*) and small animals. ~120 neurons have been isolated from three animals. For more information, see my [thesis manuscript](#). Future iterations of the setup will aim to evoke singing and to integrate microdialysis and optogenetics. Code for [data acquisition](#) and [analysis](#) are available online.

Marmoset patch-clamp data analysis (2015-2016)

Using IgorPRO, voltage-clamp data from marmoset hippocampal cells were visualized as current-firing rate (IR) and current-voltage (IV) curves in MATLAB. For more information, see <https://github.com/zeebie15/Igor>

2013 – 2015

Research Assistant / Albert Einstein College of Medicine

Advisor: Dr. Kamran Khodakhah

A circuit spanning cerebellum, VTA, and PFC may be involved in autism and/or schizophrenia. To validate this circuit in mice, I administered viral vectors and optogenetically evoked neural activity in mice.

Publications

Pollak, D. J., Feller, K. D., Serbe, É., Mircic, S., & Gage, G. J. (2019). An electrophysiological investigation of power-amplification in the ballistic Mantis Shrimp punch. *J Undergrad Neurosci Educ.* 17(1), T11-T18.

Pollak, D. J. (2019). Lateral Inhibition in Zebra Finch Auditory Processing Using a Novel Apparatus for Electrophysiology. Undergraduate thesis manuscript.

Gervais, N. J., Remage-Healey, L., Starrett, J. R., Pollak, D. J., Mong, J. A., & Lacreuse, A. (2018). Adverse effects of aromatase inhibition on the brain and behavior in a non-human primate. *The Journal of Neuroscience*, 39(12), 1–11. <https://doi.org/10.1523/JNEUROSCI.0353-18.2018>

Grants

2017, 2018

Commonwealth Honors College Research Grant

Funded custom-printed circuit boards for microdrive and miscellaneous expenses for electrophysiology.

Presentations

Hit me mantis shrimp one more time. (2019). Presented for the Fourth Munich Science Slam, at Petnica Science Summer School, and at the Max Planck Institute for Neurobiology.

Lateral Inhibition in Zebra Finch Auditory Processing with Novel Microdrive. (2019). Presented for 2019 NEURON Conference at Quinnipiac University.

An Optogenetic Investigation of Cerebellum-VTA Pathway Inputs to the Prefrontal Cortex and Nucleus Accumbens. (2015). Presented for Intel Science Talent Search and the Siemens Competition.

Activities

Ballroom dance: I studied Ballroom, Latin, and social dance styles and had the opportunity to lead several introductory group lessons aimed at laypeople.

Hacking: I came to computer science by way of personal tinkering projects. One of my favorite projects connects a Arduino-based smartwatch to an Android phone via Bluetooth (BLE). <https://github.com/hamdanspam/Beantalker>

Volunteering: I help make breakfast on Wednesdays at the Amherst Unitarian Universalist Church.