

MC

# MATTHEW CHURGIN

SYSTEMS NEUROSCIENTIST | MATTCHURGIN.GITHUB.IO

## OBJECTIVE

I am a systems neuroscientist with a background in electrical engineering and image analysis seeking opportunities in biomedical data science.

## SKILLS

Python

numpy  
sklearn  
pandas

Matlab

image/data analysis  
digital I/O

Unsupervised ML

clustering  
k-means  
gaussian mixture models  
dimensionality reduction  
PCA  
t-SNE

Supervised ML

regression/classification  
cross-validation  
hyperparameter tuning

Deep learning

tensorflow/keras  
CNNs

Technical/grant writing

## EXPERIENCE

- 5+ years leading teams of 2-3 people in fast-paced results-driven scientific environment
- Proven success with publications in peer-reviewed journals *eLife*, *Nature Protocols*, *PNAS*, *Journal of Neuroscience*, and others
- Driving collaborations and developing bespoke software/hardware tools for end-user needs
- Teaching and mentoring young scientists in graduate, undergraduate, and middle school environments

### POSTDOCTORAL FELLOW • HARVARD UNIVERSITY • 06/18 - PRESENT

Built predictive models of fruit fly behavior from functional and structural neural imaging data

Developed image acquisition and analysis pipelines to automatically analyze 2-photon and confocal microscopy datasets

**Published** results in *PNAS*

**Secured** competitive NIH F32 funding (award DC018207, declined)

### PH.D. CANDIDATE • UNIVERSITY OF PENNSYLVANIA • 06/12-08/17

Pioneered hardware, software, and protocol development for high-throughput acquisition of *C. elegans* aging data

Designed and developed CNC-imaging robot and GUI to acquire individual and population behavioral data

**Published** first-author results in *eLife*, *Journal of Neuroscience*, *Nature Protocols*, *G3* and as middle-author in *Current Biology*, *eLife*, and others

## EDUCATION

### PH.D., BIOENGINEERING • AUGUST 2017 • UNIVERSITY OF PENNSYLVANIA

HHMI Interfaces Scholar, GPA (3.96/4.0)

### B.S., ELECTRICAL ENGINEERING • MAY 2010 • UNIVERSITY OF DELAWARE

Honors Degree with Distinction, GPA (3.8/4.0)



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