Matar Haller

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Tools

Proficient: Python (numpy, scipy, pandas, scikit-learn, matplotlib), MATLAB, git
Familiar: R, Lisp, Tableau, bash, SQL

Experience

Data Science Fellow, Insight Data Science, Palo Alto, CA **2016**

- Consulted with startup DeepGram to automatically segment unidentified speakers in recorded audio files.
- Engineered unsupervised algorithm combining spectral decomposition, PCA, and hierarchical clustering (matarhaller.com)
- Constructed novel validation dataset with known ground truth by scraping and splicing audiobooks (72% accuracy).
- Delivered production-ready code for use in existing predictive models and company proof of concept pitches.

Graduate Student Researcher, Helen Wills Neuroscience Institute, UC Berkeley **2010 – 2016**

- Recorded activity from surgically implanted electrodes on human brains. Implemented time series analyses, PCA with rotation, clustering, ridge regression and permutation tests to link neuronal activity with behavior. In review at *Nature Neuroscience.*
- Developed method for extracting oscillatory components from power spectra using linear regression, k-means clustering, curve fitting and cross validation. Precision and recall match human performance.
- Supervised and mentored research assistants and graduate students. Taught experimental design, electrophysiology recording, and analysis pipeline using Python and MATLAB.

Graduate Student Instructor, UC Berkeley **2005 – 2013**

- Collaborated with graduate students and professors to construct lesson plans for Neuropsychology, Drugs & the Brain, and Cognitive Science courses, each with 100-600 students each.
- Awarded Outstanding Graduate Student Instructor. Average evaluation: 6.7/7

Research Assistant, Helen Wills Neuroscience Institute, UC Berkeley **2005 – 2007**

- Designed and conducted experiment to probe causal influence of prefrontal cortex on posterior brain regions.
- Trained a team of research assistants to collect and analyze EEG data from brain-damaged patients.

Projects

OkNLP **2016**

- Combined NLP (tf/idf, tokenization) with machine learning (non-negative matrix factorization, grid search, cross validation) to analyze free text and demographic information from online dating profiles.
- Identified unintentional signals of drug usage status in free text self-descriptions across 60k user profiles.
- Talk accepted to SciPy 2016 in Austin, Texas.

Software Carpentry **2014**

Taught scientific computing skills including Python, shell, and version control to Stanford graduate students.

Women in Tech **2014**

Taught programming using Jupyter notebooks to high school girls at PyData Silicon Valley.

Military

Tank Instructor, Armored Corps, Israel Defense Force **2007 – 2009**

Trained recruits, commanders and officers on the weapons control system of the Merkava Mark II tank.

Education

Ph.D., Neuroscience, UC Berkeley **2010 – 2016**

National Science Foundation Graduate Research Fellow

B.A., Cognitive Science; Psychology, UC Berkeley **2003 – 2007**

Highest Distinction in General Scholarship, Departmental Citation in Cognitive Science