

Brian Barry

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Education

University of California, San Diego

March 2020

BS: Cognitive Science (Machine Learning and Neural Computation)

Minor: Mathematics

Skills

Programming

- Python + Jupyter Notebooks (2.5 years)
 - Statistical analysis and data visualization
 - Machine learning (supervised and unsupervised) + deep learning
 - Modeling and simulation
 - Signal processing
 - Web scraping and API querying
- SQL (1 year)
- MATLAB (2 years)
- JavaScript (1 year)
- HTML & CSS
- R
- Version control: Git

Data visualization

- Tableau + D3.js + Matplotlib

Other

- Fluent in French

Experience & Internships

Undergraduate Research Assistant, Voytek Lab, UCSD

September 2019 - February 2021

Investigated the correlation between spatial and temporal decompositions of neural spiking data using Python.

- Built pipeline to compute correlations between spectral exponents of eigenvalue spectra (from PCA) and power spectra (from FFT)
- Implemented computational model to simulate data
- Presented findings at the Neuromatch Conference (talk) and Brain Criticality Conference (poster)

Undergraduate Research Assistant, Swartz Center for Computational Neuroscience

April 2019 - February 2021

Analyzed EEG data from a rhythmic control task using EEGLAB (MATLAB), and wrote a plugin for EEGLAB incorporating a spectral parametrization module.

- Wrote scripts to automate ICA decomposition, epoching, fitting dipoles, and plotting figures
- Organized ERP, dipole and ERSP component clusters with interactive HTML visualization
- Engineered back-end framework and GUI components for the EEGLAB plugin.

Founder, Major Map Initiative, UCSD

January - August 2020

Led the development of majormap.ucsd.edu, a web based student organization intended to help students select and understand their majors with greater depth. The website currently has an interactive applet that displays course prerequisite maps with D3.js, with more features under development.

- Implemented web scraping script in Python to collect course prerequisites
- Designed front end for website
- Recruited new members

Research Assistant, Stanford Behavioral and Functional Neuroscience Laboratory **February - March 2021**

Conducted pilot study consisting of behavioral experiments on SCO2 KI/KO mice models.

- Set up and conducted experiments, tracking activity with EthoVision XT software
- Analyzed data and presented results to the lab

Undergraduate Research Assistant, UC San Diego Health **January - June 2019**

Conducted EEG neurofeedback experiments and pupillometry assessments on schizophrenic and schizoaffective subjects.

Intern, Jet Propulsion Laboratory **June - August 2014**

Organized and compiled Voyager I residual radio data from Unix into Excel.

Teaching Experience

Instructional Assistant, Cognitive Science, UCSD **January - March 2020**

Led discussion and graded assignments for COGS 101A (Sensation and Perception).

Extracurricular Activities

Community Service Chair, Sigma Phi Epsilon, UC San Diego **January - September 2019**

Sought out and organized community service opportunities for the chapter.