

# Scott Cole

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 [srcole](https://github.com/srcole)

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## **Skills**

- Python (numpy, scipy, sklearn, matplotlib, pandas), MATLAB, Tableau <sup>1</sup>
- Statistics, signal processing, machine learning, recommender systems, data scraping and cleaning
- Technical writing and presentations
- Teaching - mathematics tutor, graduate teaching assistant, and guest lectures (e.g. clustering, GLMs, signal processing)

## **Education**

*Ph.D. Student in Neuroscience, computational focus* GPA: 3.9 2014 - Present  
University of California, San Diego La Jolla, CA

*B.S. in Bioengineering, signal processing focus, math minor* GPA: 4.0 2010 - 2014  
Clemson University Clemson, SC

## **Graduate research**

- Developed a novel time series analysis to extract information about brain activity
- Applied statistical analysis to assess changes in brain activity caused by treatment for Parkinson's disease
- Developed a workflow to transform neural signals into tables of features for efficient statistical analysis
- Presented at Society for Neuroscience meetings (2015, 2016) and the Hebrew University of Jerusalem (2017)
- Published research in Journal of Neuroscience and Trends in Cognitive Sciences <sup>2</sup>
- Mentored 3 PhD rotation students (3 months each) and 2 undergraduate researchers (5+ months)
  - Taught signal processing, python, coding practices, and neuroscience

## *Code sharing*

- Initiated the creation of a code base for collaboration between lab members and open sharing with the community<sup>3</sup>
- Developed and released a python package to compute coupling between brain rhythms
- Released the code (and data) to replicate the analysis and figures in my publication on Parkinson's disease
- Wrote a tutorial for supercomputing with python, and presented to the Open Science Grid

## **Personal data science projects**

*Burritos*: Developed a system to systematically judge burritos across San Diego. Recruited 62 reviewers to rate 320 burritos at 75 taco shops. Characterized and analyzed patterns in data. Work was presented at Ignite San Diego and covered by the San Diego Union-Tribune, Canadian Broadcasting Corporation, and Partially Derivative podcast.

*Currency exchange*: Scraped historical data, engineered features, implemented machine learning algorithms to predict the Euro-Dollar exchange rate, evaluated efficacy of trading strategies, and met with traders at FXCM.

*Data for Democracy*: Member of this group advocating data science for public good. Involved in scraping and processing crime data as part of the USA Dashboard project.

*Neuroscience poster popularity*: Designed an efficient data collection system for evaluating the popularity of posters at the Society for Neuroscience 2016 conference. Identified variance in popularity explained by geography and subfield.

*Flight delays*: Characterized trends in flight delays and trained a classifier to predict if a flight would be delayed.

## **Awards**

Frontiers of Innovation Scholars Program - University of California, San Diego	2017
National Science Foundation Graduate Research Fellowship	2014-2017
Poly-Med Outstanding Senior Award - Clemson University Bioengineering Department	2014
Barry M. Goldwater Scholarship	2013
1 <sup>st</sup> Place Undergraduate Oral Presentation - Society for Biomaterials Symposium, Clemson University	2012

<sup>1</sup><https://public.tableau.com/profile/scott.cole#/> <sup>2</sup><https://scholar.google.com/citations?user=fZe7tcwAAAAJ&hl=en> <sup>3</sup><https://github.com/voytekresearch/neurodsp>