# Scott Cole

✉ scott.cole0@gmail.com     ⌨ srcole     https://srcole.github.io

## Skills

- Python (pandas, sklearn, seaborn, numpy, scipy, matplotlib), MATLAB, Tableau
- Signal processing, machine learning, data processing, statistics
- Technical writing and presentations
- Teaching - mathematics tutor, graduate teaching assistant, and guest lectures (e.g. clustering, GLMs, signal processing)

## Work experience

*Data science intern - Crime Lab New York*                                                                Sep-Dec 2017
- I expanded upon and built a variety of machine learning models that predict future police misconduct from officer
  behavior to be applied as an Early Intervention System (EIS). I designed a highly adaptable workflow to allow easy
  comparison of potential algorithms and baselines and analyzed each algorithm's utility. Work also included descriptive analysis.

## Education

*Ph.D. Candidate 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 from neural signals
- 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 research at national and international meetings
- Published research in Journal of Neuroscience and Trends in Cognitive Sciences [1]
- Mentored 3 PhD rotation students (3 months each) and 2 undergraduate researchers (>1 year each)
        - Guided projects and 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[2]
- 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*[3]: Developed a system to systematically judge burritos across San Diego. Recruited 62 reviewers to rate 350 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.

*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.

## Awards

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| 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 |
| 1st Place Undergraduate Oral Presentation - Society for Biomaterials Symposium, Clemson University | 2012 |

[1] https://scholar.google.com/citations?user=fZe7tcwAAAAJ&hl=en   [2] https://github.com/voytekresearch/neurodsp   [3] https://github.com/srcole/burritos