Daniel Breen

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https://github.com/dnlbreen

Physics PhD with exceptional quantitative and analytical skills and demonstrated ability to produce intellectual assets from real world data. 2+ years experience and proficiency using Python in dissertation research, basic knowledge of several common software tools used in analyzing data, and experience in core collaborative roles.

Experience

UC San Diego **La Jolla, CA**
Graduate Research Assistant *August 2014– 2017*

- Developed novel bayesian inference methods capable, for the first time, of estimating *all* parameters in conductance models of neurons using real world time series data and validating by *exactly* predicting time evolution.
- Showed that coarse graining data in time, reducing complexity of models, and decreasing max number of iterations could speed up the algorithm by a factor of 10 without reducing quality of estimates or predictions.
- Used random forests and patterns in estimated parameters to correctly predict distinct neuron number and neuron identity of labels for 21 unlabeled voltage clamp data sets.
- Played a leading role in forming two collaborations with researchers in different fields who provided experimental data. One collaboration resulted in a conference paper at bioCAS 2016 and a poster at an MBI workshop.
- 2+ years experience with Python, some familiarity writing and editing C++, CUDA, R, and SQL.

Education

- **UC San Diego** **La Jolla, CA**
  PhD in Physics *2011–2017*
- **UC San Diego** **La Jolla, CA**
  MS in Physics *2011–2013*
- **New Mexico Tech** **Socorro, NM**
  BS in Physics *2007–2011*

Programming Languages

- **Proficient:** Python
- **Basic:** R, SQL, Git, Shell, C/C++, CUDA

Accomplishments

- Presently a semifinalist for The Data Incubator Fellowship
- 3 publications plus 1 preprint. I am primary author on the preprint and 1 publication.