Jonathan**Cornford**

I'm finishing my PhD in Neuroscience and I'm excited to apply scientific and machine learning methods to meaningful Data Science questions. I am strongly motivated by analysis problems, in particular the learning and initiative needed to overcome them. Working in small multi-disciplinary teams with a collaborative dynamic is also a highlight for me.

Relevant experience

Data science internship — Aug 2016 - Sept 2016, Close Brothers

- I worked as part of a team employing agile working methodology to apply standard machine learning algorithms (random forests, logistic regression) to develop predictive models of customer behaviour for one of the bank's intermediaries. Models and insight were then communicated to the senior management of the bank and partner company.
- This project was part of Science to Data Science 2016, a five-week program to facilitate transition from academia into Data Science for analytical PhDs.

Main author of PyEcoG — github/jcornford/pyecog

- Pyecog is a python module and GUI for supervised learning of brain states, such as epileptic seizures, from single channel electrical recordings of rodents. Currently used by multiple laboratories in Germany and England.
- Experienced training models on large amounts (>200 gb) of data and evaluating model performance on datasets with highly unbalanced target classes of ≈0.1%.
- Classifier uses random forests, hidden markov models, and scientifically-relevant hand engineered features. Built on sklearn, numpy and H5py.
- Wrapped classifier into a GUI-based analysis pipeline, including annotation and model prediction evaluation, that has been used to analyse >1TB of data. Uses multiprocessing and fast graphical display elements (pyqt5 and pyqtgraph).

PhD in Neuroscience — University College London

- Statistics, hypothesis testing, general data analysis and visualisation.
- Wrote experimentally constrained computer models of brain cells using Python. Selected to present this work at a Human Brain Project meeting in London.

Teaching: Introduction to Scientific Python — github.io/scipython

- I teach on a week-long gradschool course at UCL that runs twice a year to teach PhD students at UCL the python datastack.

Financial modelling — Feb-2015, WorldQuant

- Placed in the top 2% of World Quant's websim alpha modeling challenge (58/3270 participants). I focused on combining basic technical indicators with fundamental data.

Education

2012 - 2017 PhD in Neuroscience — University College London
Computational aspects of fast-spiking PV+ interneuron signalling.

2008 - 2011 Physiological Sciences, BA Hons, 2:1 — Oxford University
Main subjects: Neuroscience, Cellular Signalling.

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Programming
Python (adv)
R, Matlab (inter)
html, css, js (inter)
SQL, C++ (basic)
bash (basic)

Python Modules
scikit-learn
pandas
numpy
scipy
h5py
PyQT5

Tools
Docker (inter)
AWS (basic)

Positions of responsibility

2013 - 2014   **UCL Queen Square Committee Co-Chair**
Led a postgraduate committee to organise the 2014 Queen Square Neuroscience Symposium. Day was composed of talks, keynote lecture and poster session. Over 250 people attended, >£2k budget.
Also responsible for social events, and relating student (>400) feedback to academic steering committees throughout the year.

2010 - 2011   **Oxford University Physiological Society President**
Elected to lead the student society and committee to organise evening speakers and social events

Courses

2016   **Statistical Learning**   Stanford (online)
Online course based on the materials from ISLR. Achieved distinction in the assessed section of the course.

2015   **Introduction to machine learning**   University College London
1 week intense course ran by the Gatsby Computational Neuroscience Unit: regression, clustering, dimensionality reduction, time series, classification.

2014   **Advanced Course in Computational Neuroscience**   FIAS, Frankfurt
4 week course: multi-compartmental computational modelling of neurons, model tuning.

Awards and Prizes

2015   **Bougue Research Fellowship**
£5,800 fellowship award to fund research placements at Stanford University and the Allen Brain Institute in Seattle.

2014   **Advanced Course in Computational Neuroscience scholarship**
Travel & accommodation scholarship for the four week course in Frankfurt.

2011   **British Physiological Society Undergraduate Project Prize**
Awarded in recognition of the quality of research project and dissertation.

Interests

Hobbies: Rock climbing, scuba diving, chess and also a very amateur bread baker.