Derek Fulton

MPhil Student · US Citizen

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Education

University of Cambridge — *Cambridge, UK*

MPhil in Computational Biology — *Oct 2018 - Aug 2019*

- Coursework included deep learning, signal processing, Bayesian statistics, computational neuroscience
- Grade: 69/100 as of 17 April 2019

University of North Carolina at Chapel Hill — *Chapel Hill, North Carolina, USA*

BSc in Quantitative Biology — *Aug 2014 - May 2018*

- Honors College
- Cumulative GPA: 3.0

Research Experience

UNC Department of Biology (Dr. Kerry Bloom) — *Chapel Hill, North Carolina, USA*

Computational Biologist — *May 2016 - June 2018*

- Dramatically improved the lab's data processing pipeline by automating the preprocessing and analysis of terabytes of images
- Investigated the biophysics of cell division with Chromoshake, a **C++** mathematical model based on polymer physics and fluid dynamics

UNC Eschelman School of Pharmacy (Dr. Alex Tropsha) — *Chapel Hill, North Carolina, USA*

Undergraduate Machine Learning Engineer — *Dec 2017 - May 2018*

- Worked to build a protein-ligand pose scoring function using a convolutional **neural network** using **Keras** with the hopes of dramatically accelerating the pace of computational drug discovery for researchers worldwide
- Trained the network on a dataset of 13,000 experimentally measured protein-ligand binding affinities

University of Cambridge Department of Applied Mathematics and Theoretical Physics (Dr. Stephen Eglen) — *Cambridge, UK*

Summer Research Fellow — *May 2017 - Aug 2017*

- Built an online, interactive statistical explorer in **R** of neuroscience data to improve ease of collaboration among neuroscience researchers worldwide

Projects

Doran's Lab — *Raleigh, North Carolina, USA*

Data Visualization Developer — *May 2018 - PRESENT*

- Used **d3.js** to build interactive logistic regression for predicting winners of League of Legends
- Visualized **t-SNE** clustering interactively, allowing the user to dynamically change the number of clustering groups

iClicker Attendance Solution — *Chapel Hill, North Carolina, USA*

Hardware Engineer — *March 2018*

- Used **Arduino** and radio transceiver to reverse engineer the iClicker, a radio frequency remote for in-class tests and quizzes meant to guarantee attendance
- Made lecture optional again by powering **Arduino** with battery, enabling 24/7 preparedness for automatic poll responses based on the majority answer of the nearby iClickers

Swap Drop Enroll — *Chapel Hill, North Carolina, USA*

Creator — *Jan 2016 - Jan 2017*

- Built webapp that auto-registers students for popular classes the instant a vacancy opens up (**Flask** and **Digital Ocean**)
- Empowered the hundreds of UNC students who used Swap Drop Enroll to seize control of their education, leading them to pursue subject material they are most passionate about on their own schedules
- Brought on as consultant to UNC registrar, after being asked to shut down by UNC administration

Honors and Awards

Boeing and UNC Kenan-Flagler Business School *Chapel Hill, North Carolina, USA*

Boeing Innovation Fellow *May 2017*

- Won a 2,500 dollar award for ideating and presenting the concept of a smart waste bin that classifies food waste based on spectroscopy
- Prepared and gave a 10-minute presentation to Boeing Executives about the financial feasibility of the concept

Language

- **Python** (expert), **JavaScript** (experienced), **Unix** (experienced), **R** (experienced), **C++** (accustomed)
- **English** (native), **Spanish** (fluent, written and oral)

Writing

Satirist *Chapel Hill, NC, USA*

Daily Tar Heel *Sep 2017 - Feb 2018*

- Wrote a weekly satirical advice column called ”You Asked For It” for The Daily Tar Heel (UNC campus newspaper) satirizing certain parts of the UNC student experience
- Wrote more thoughtfully about serious campus issues from time to time