

# Derek Fulton

STUDENT · SEEKING EMPLOYMENT

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*I am a motivated student with experience in data pipeline design, mathematical modeling, and data visualization in a number of programming languages. I am looking for a position that allows me to design, implement and optimize computational, data-driven approaches to tough problems in research and industry.*

## Education

### University of Cambridge

Cambridge, UK

MPHIL IN COMPUTATIONAL BIOLOGY

Oct 2018 - Sep 2019

- Accepted, starting in October 2018

### UNC (University of North Carolina at Chapel Hill)

Chapel Hill, North Carolina, USA

B.S. IN QUANTITATIVE BIOLOGY, MINOR IN MATHEMATICS

Aug 2014 - PRESENT

- Honors College
- Cumulative GPA: 3.4

## Experience

### UNC Department of Biology (Dr. Kerry Bloom)

Chapel Hill, North Carolina, USA

COMPUTATIONAL BIOLOGIST

May 2016 - PRESENT

- Worked with a team of biologists to develop better, more automated methods of data analysis that have accelerated the pace of research in the group dramatically
- Worked on Chromoshake, a mathematical model based on polymer physics (in **C++**) to simulate the molecular dynamics of the replication apparatus for budding yeast at the nanoscale based on data collected from analyzing images

### University of Cambridge Department of Applied Mathematics and Theoretical Physics (Dr. Stephen Eglén)

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
- Created a series of Jupyter notebooks in **Julia** allowing the user to understand and visually interact with important differential equations modelling neuroscience phenomena

### UNC Eschelman School of Pharmacy

Chapel Hill, North Carolina, USA

UNDERGRADUATE RESEARCHER

Dec 2017 - PRESENT

- Building a superior protein-ligand pose scoring function with convolutional **neural network** using **Keras** with the hopes of dramatically accelerating the pace of computational drug discovery for researchers worldwide.
- Training the network on a dataset of 13,000 protein-ligand pairs (PDB Bind) with experimentally measured binding affinities.

## Personal Projects

### Swap Drop Enroll

Chapel Hill, North Carolina, USA

CREATOR

Jan 2016 - Jan 2017

- Created website and system that automatically enrolls UNC students into high-demand classes the instant a vacancy opens up
- Built frontend with **Flask**, backend with **MySQL** and **PhantomJS**
- Consulted for UNC Vice Chancellor of Information Technology by providing data on class demand

### UNC Crime Explorer

Chapel Hill, North Carolina, USA

CREATOR

Aug 2017

- Created a user-facing website that offers a visualization of the UNC Crime Log (per the 1990 Clery Act)
- Allows query for location, date or crime type and also raw data download
- Strategized with Chapel Hill Police Department to combine their data with UNC Police Data to centralize open crime data in a more meaningful way for Chapel Hill students and residents

## Honors and Awards

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### Boeing

Chapel Hill, NC, 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
- Pitched the concept to a panel of Boeing executives to receive feedback on economic and technical feasibility

## Skills

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- Fluent in Spanish, native in English
- Semi-professional musician in several instruments
- Competitive collegiate squash player

## Writing

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### Satirist

Chapel Hill, NC, USA

DAILY TAR HEEL

Sep 2017 - Feb 2018

- Wrote some hilarious bits for the greatest campus newspaper of all time, The Daily Tar Heel
- Also wrote some longer columns on serious campus issues