

Derek Fulton

STUDENT · SEEKING EMPLOYMENT

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I am a motivated student with experience in image processing, mathematical modeling, and data visualization. I am passionate about automation, math and the phrase "there's gotta be a better way to do this." I am looking for a position that allows me to design, implement and improve computational, data-driven approaches to tough problems in research and industry.

Education

UNC (University of North Carolina at Chapel Hill)

Chapel Hill, NC, USA

B.S. IN QUANTITATIVE BIOLOGY, B.A. IN MATHEMATICS

Aug. 2014 - PRESENT

- Honors College
- Cumulative GPA: 3.4

Experience

UNC Department of Biology (Dr. Kerry Bloom)

Chapel Hill, NC, 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
- Currently working with convolutional **neural networks** to automate the tracking and segmentation of proteins of interest in **fluorescence microscopy** images, allowing many analyses to be completely automated
- 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, United Kingdom

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

Personal Projects

Swap Drop Enroll

Chapel Hill, NC, 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 Database

Chapel Hill, NC, USA

CREATOR

Sep. 2010 - Oct. 2011

- Used **Python** to classify UNC's database of 30,000 crimes into zones and categories that hold meaning for UNC students (i.e. academic buildings, fraternity court, etc)
- Used **Node.js** with Google Maps API to publish this data visually

Honors and Awards

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