Stephen Bailey

Data Science and Programming

2013 – Present

Vanderbilt Brain Institute

NIH Research Fellow

Used graph theory to model the human brain "connectome" and its importance for language.

- Leveraged high performance computing cluster to streamline analyses, reducing human wait time from >1 week to <1 hour.
- Upgraded lab imaging database of 13,000+ scans by directing its migration to web-based storage platform (XNAT).
- Published analyses using machine learning to classify patients by disability based on MRI data. Also published papers with other methods, including GLM, ICA/PCA, graph theory, and time-series analysis.

2017

Center for Technology Transfer at Vanderbilt

Application Developer

Developed core application for patent-pending "text readability" algorithm in Python.

- Applied *natural language processing* tools to decode and tokenize documents.
- Developed production Django web application to score and analyze documents, now used by lab researchers.

2018 – Present

Nashville Biosciences

Data Science Intern

Built standardization pipelines for electronic health records from Vanderbilt's BioVU database.

- Mapped pharamaceutical data to NIH RxNorm database to allow matching across hundreds of different encoding schemes.

2017

Metro Nashville Public Schools

Data Analyst

Built interactive reports on teacher vacancies that transformed communication between central office staff and 130+ school leaders.

- Honed communication skills with multiple audiences, including executive leadership.

✍ **Overview**
I am a rigorous scientist with expertise in image processing and statistics, with a process-driven, engineering mindset.

Expect me to: Take ownership. Drive towards results. Put team first. Always ask questions. Improve every day.

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Education

2013 – Pres. **Neuroscience & Quantitative Methods**
Doctor of Philosophy
Vanderbilt University

2007 – 2011 **Chemistry & Philosophy**
Bachelor of Science
Bachelor of Arts
Samford University

Technical Skills

Python (esp. matplotlib, scikit-image, scikit-learn, keras), Ubuntu, bash, Matlab, SQL, Power BI, HTML, Django, MS Office

Honors, Awards & Talks

- **Biomedical Image Analysis in Python**: Professionally-produced DataCamp.com online course.
- Accepted into the Insight Data Science Fellowship program.
- Awarded an National Institutes of Health research fellowship.
- **Deconvoluting Convolutions**: Recap of Kaggle's 2018 Data Science Bowl and tutorial on using deep convolutional networks for object detection.
- **Principles of Network Analysis in Python**: Tutorial at PyTN on applying graph analysis to scraped data from Meetup.com.
- Research contributed to lab's latest NIH grant application, which scored in the 99th percentile and was awarded at $2.5 million.
- Authored 8 papers, presented 9 posters and was invited to give a talk at a major international conference.