CHARLES BLACKMON-LUCA

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EDUCATION

Columbia University, School of Engineering and Applied Science **New York, NY**
B.S. Computer Science, Minor in Applied Mathematics *September 2015 – May 2019*

- **Cumulative GPA: 3.5/4.0**
- **Relevant Coursework:** Introduction to Databases, Numerical Methods in Python, Fundamentals of Computer Systems, Data Structures in Java, Dynamical Systems, Partial Differential Equations, Linear Algebra, Statistical Inference, Complex Analysis

EXPERIENCE

Lamont-Doherty Earth Observatory **New York, NY**
Software Engineer *August 2019 – Present*

- Created continuous integration tools using GitHub Actions to lint and test Intake-based climate data catalogs
- Developed HTTP API to serve cloud accessible Zarr datastores and metadata using Google Cloud Functions
- Deployed dynamic website through App Engine to display interactive previews of datasets using xarray and Flask

Computational Technology Intern *June 2018 – July 2019*

- Optimized netCDF dataset fetching algorithms using xarray and xESMF, reducing runtimes by 60%
- Worked in a Unix environment using JupyterLab to create demos of climate data manipulation and plotting
- Created and maintained repository of source code on GitHub, improving portability across team platforms

Undergraduate Research Assistant *February – May 2018*

- Analyzed correlational data between rainfall and surface energy budget in climate models using SciPy
- Generated comparative figures using Matplotlib to identify and correct computational errors in models
- Compiled errors during weekly group meetings to prepare for writing and publishing of corrigendum

PROJECTS

Databases in Python *February – April 2019*

- Implemented Pythonic relational database with CRUD functionality using MySQL and PyMySQL
- Developed and tested REST API to interact with database implementation using Flask and Postman
- Generated interactive NoSQL graph database from Lahman baseball dataset using Neo4j and Py2neo

Numerical Method Analysis *September – December 2017*

- Compared efficiencies of computational root-finding/optimization algorithms
- Implemented data interpolation and quadrature methods using NumPy
- Plotted phase plane solutions to partial differential equations using Matplotlib

Young's Modulus on Steel Guitar Strings *September – December 2015*

- Conducted physical tests on the yield stress of steel guitar strings
- Visualized results of testing in stress-strain plots using MATLAB
- Summarized and presented results in research showcase

SKILLS

Languages: Python; Java; JavaScript; C/C++; MATLAB
Software: Git; Bash; Unix; Google Cloud Platform; MySQL; Microsoft Word, Excel, PowerPoint; LaTeX