Brian Blakely

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Education

Bowling Green State University, Bowling Green, Ohio — Anticipated Graduation: Spring 2021

Bachelor of Science: Computer Science, Mathematics

- BS in both CS and Mathematics
- Major GPA: 3.6
- GPA: 3.3
- Honors & Awards: Dean's List

Technical Skills

- Python
- Numpy, Pandas, Scikit-learn, Tensorflow
- R
- SQL
- Parallelization and Cluster Computing
- Automated Data Aggregation
- Software Development Life Cycle (SDLC)
- Agile
- Object Oriented Programming
- Java
- C++
- Lua, Ruby, Haskell

Research Experience

Covid Data Science Research — June 2020 - Present

BGSU

- Worked with a team of 7 to explore connections between Covid case counts and multiple different data sources with a large focus on data quality
- Automated the collection, processing, combination, and storage multiple different data sources
- Designed multiple data storage schemas with a focus on simplicity and efficiency
- Built a small cluster to leverage cluster computing to process and model large data sets quickly

Open Source Optimization Research — July 2020 - September 2020

SafeGraph

- Significantly contributed to an open source Python library for useful analytic computations on SafeGraph's data
- SafeGraph data consists of historic foot traffic data to millions of businesses based off millions of American's GPS data
- Optimized all processing functions using multithreading with up to a 97% reduction in runtime
- Co-hosted a web seminar showcasing the Python library and the multithreading improvements

Twitter Social Listening and Mining August 2020 - Present
BGSU

- Data mined millions of tweets off Twitter on a daily basis for three months
- Found workarounds to avoid the imposed API rate limitations
- Discovered data quality issues in Twitter data and formed a small team to research solutions
- Reverse engineered tweet metadata using previous literature and intuition to implement a groundbreaking feature which enabled further research
- Exploited metadata to create a logistically optimal predictor, *tweet velocity*, which strongly correlates to the density of tweets at a given time point
- Designed statistical performance measures and conducted large computational experiments to disprove the effectiveness of a statistical method, opposing the teams opinion
- Engineered an algorithm, *VBest*, which efficiently builds a statistical model for the distribution of tweets in a region based on velocity, then returns informed samples based on estimated density
- Conducted a field experiment to prove the performance of the VBest algorithm in practice
- In the works of publishing an academic paper on the VBest algorithm
- Created many visualizations for explaining the algorithms steps and the performance for presentation purposes

Informal Experience

Developer February 2019 - November 2019
Independent

- Developed and maintained video game software for distribution to roughly 30 users
- Worked with leaders to analyze problems and determine if programs can be developed to solve them
- Actively updated software to implement suggests user suggestions or fine tune it for certain users specifically
- Underwent the stages of development under a strict time frame
- Solved problems for user compatibility and performance issues
- Got familiarized with the stages of development; evaluation, design, creation, debugging, distribution, feedback, and repeat
- Published certain products to a wider market, going from 30 users to upwards of 300 users

Collegiate Activities

BGSU Hackathon, Best Design February 2020

- Analyzed the lyrics of the top 100 songs in the last 60 years
- Generated the data set by using web scraping and a public API to get song lyrics
- Used feature extraction, NLP, and machine learning to analyze the data
- Created multiple different visualizations to present findings
- Awarded best project design in the hackathon

Mathematics Research Project January 2017 - September 2017

- Independent research project in mathematics mentored by my mathematics professor which extended on a subject covered in class
- Devised an alternative method to solve a set of problems covered in class
- Had weekly meetings to collaborate and report on research progress
- Gave a technical lecture to over 30 undergraduates discussing the results of the project, specifically highlighting the advantages and disadvantages of the method

Collegiate Coursework

- Calculus
- Linear Algebra
- Machine Learning
- Software Engineering
- Non-Linear Data Structures
- Discrete Data Structures
- Computer Architecture and Organization
- Operating Systems
- Techniques of Simulation
- Differential Equations
- Numerical Analysis

Special Skills & Interests

- Strong interest in Research and Development
- Strong interest in Machine Learning Research and Application
- Annual participant of the Putnam Mathematical Competition