

William Andrew Cruse

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EXPERIENCE

UNC GREENSBORO | UNDERGRADUATE RESEARCHER

Aug 2019 – May 2021 | Greensboro, NC

- Developed, tested new time series classification models based on topological data analysis techniques with accuracy up to 80%.
- Scripted K-Nearest-Neighbor classification using Euclidean and dynamic time warping metrics to classify time series in Python.
- Cleaned, maintained, and transformed large data sets for optimal research purposes.
- Designed visualizations of data transformations and aided research team in preparing research papers for publication at the 2020 International Conference on Pattern Recognition.
- Maintained responsibilities by participating in weekly Agile sprints.
- Advised a team of undergraduate physics researchers on geometric based clustering algorithms in Python and MatLab.

PROJECTS

PYTHON STOCK ANALYSIS

- Utilized object oriented Python class to pull, analyze, and predict stock market close values.
- Implemented neural network model using Python's Scikit-Learn and Keras libraries to predict trends in time series.
- Visualized time series data by writing to MySQL database and importing data to Power BI dashboard.

INSTAGRAM DATABASE CLONE

- Designed MySQL Instagram database clone with schema diagram to store and analyze Instagram data.
- Wrote SQL search queries and joins to solve potential business issues such as determining potential bot accounts.
- Scripted VBA connection to MySQL database to write data to Excel for analysis.

NAKAMA SCOUTER

- Coordinated a team of 5 student developers to create a restaurant recommendation program in Java.
- Connected data collected from Google's Geocoding API to user database and made recommendations based on user location and preferred dish.
- Orchestrated project by managing GitHub pull requests and hosting weekly Agile sprints.

COMIC BOOK STUDIO

- Collected data from various city-based subreddits by searching for keywords to determine best locations for a comic book studio.
- Prepared data sets collected using Pushshift's Reddit API to compare keywords to population and wrote results to Jupyter Notebook.

EDUCATION

UNC GREENSBORO

BACHELOR OF SCIENCE IN

MATHEMATICS WITH MINOR IN

COMPUTER SCIENCE

Graduated May 2021 | Greensboro, NC

SKILLS

PROGRAMMING

Python

MatLab

SQL

Java

Visual Basic

TECHNOLOGY

Git/GitHub

Jupyter Notebook

Scikit-Learn

Excel

PowerPoint

MySQL Workbench

PyCharm

Power BI

COURSEWORK

Probability Theory

Topological Data Analysis

Advanced Data Structures

Linear/Abstract Algebra

Software Engineering

Calculus/Real Analysis

Numerical Analysis

SOCIETIES

Association for Computing Machinery (ACM) - Secretary

UNCG Math Club - Treasurer

InfoSec

Association for Women in Mathematics

LINKS

Github:// **Andy-Cruse**

Portfolio:// **Andy-Cruse**

LinkedIn:// **william-andy-cruse**