Nathan Gu

Canton, MI | (734) 635-3481 | gunathan@msu.edu | www.linkedin.com/in/nategu72

Education

Michigan State University- East Lansing, MI Expected December 2023
Bachelor of Science, Computer Science
Minors in Data Science and Computational Mathematics, Science and Engineering
Cumulative GPA 4.0 Dean's List

Experience

Carpenter Technology Corporation, Digital Technology Intern, Reading, PA May 2023- Present
- Integrated 22 Excel files with mixed information into one simple and uniform Excel file using Python and Jupyter Notebook.
- Preformed data analysis on storeroom transaction data, which included writing an algorithm that calculated the average number of days a material stayed in the storeroom before being used.
- Combined multiple calculated fields and pre-existing fields with the average age from the algorithm and created an interactive report in Power BI to visualize the data.
- Identified problematic items, such as items that have never moved out of the storeroom and provided upper management with the information needed to act on them.
- Currently working on transferring the analysis from Power BI to a tool that allows analysis to be conducted on live data, ThoughtSpot.

Michigan State University, Algorithms and Data Structures ULA, East Lansing, MI August 2022- Present
- Designed problems, including solutions and test cases, that involved the real-life usage of data structures for 100+ students to solve.
- Helped 100+ students with the understanding of data structures and algorithmic principles in weekly held in-person help rooms.
- Reviewed 100+ projects to analyze the run-time complexity and space complexity of code to determine if students met efficiency requirements.
- Participated in weekly meetings with the professor and other ULAs and TAs to discuss the projects created and to plan for the next week.

Elektrobit, Software Engineering Intern, Farmington Hills, MI May 2022- August 2022
- Used object oriented programming principles in Java to implement the logging of XPath expressions from a complex and long-maintained software consisting of 100+ modules; this work was done for an overarching update of this software.
- Wrote an efficient Python algorithm to manipulate XML based data in order to reduce the file size for input into successive scripts.
- Effectively collaborated with project supervisors and team members in daily AGILE based sprints, resulting in an early completion of the project deliverable.

Dr. Hanzhe Zhang's Lab, Research Assistant, East Lansing, MI February 2022- August 2022
- Designed algorithms written in Stata and R to clean and extract features from input Excel data to use for training machine learning models
- Researched feature selection methods to demonstrate the relative importance of features inputted into a machine learning model, in order to optimize the data preprocessing process and increase the interpretability of the deep learning model.

Dependable Systems Lab, Research Assistant, East Lansing, MI May 2021- August 2021
- Interfaced with a team of two other undergraduate assistants to research and gain a deep understanding of the latest advances in temporal logic, such as HyperLTL
- Helped to develop the full stack of an interactive web application allowing lab members to convert propositional logic to a more usable format in order to enhance the dependability of security systems
- Used HTML and CSS to build a front end interface that allows for user input of propositional logic
- Helped to utilize JavaScript AJAX + Flask on the back end to connect to an external server and deploy a Python script to perform the propositional logic conversion

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Projects

SpartyGnome Platformer Game: Collaborated with a team of four other students to develop a fully functional game with multiple levels and interface elements such as a menu option that supported XML loading, all from scratch in C++. This was done by leveraging fundamental object oriented techniques such as inheritance, composition, and polymorphism. Took charge of organizing AGILE based two week sprints in order to successfully meet the project objectives.

Skills

C++, Python, Java, ARM Assembly, R, Pandas, Numpy, Scikit-learn, Matplotlib, Seaborn, Dplyr, Ggplot, HTML, CSS, JavaScript

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