Katie McHugh

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EDUCATION

UNIVERSITY OF NOTRE DAME NOTRE DAME, IN — MAY 2021

Bachelor of Science in Computer Science

GPA: 3.93 *Major GPA*: 4.0

Dean's List all semesters, VP of Tau Beta Pi Engineering Honor Society (2020 – 2021)

TECHNICAL SKILLS

PROFICIENT IN: Python, C, SQL, HTML, JavaScript, C++, Git

FAMILIAR WITH: Java, Express, PHP, CSS, MATLAB, MEL, Verilog, shell scripting

INTERNSHIPS

FORENSICS TECHNOLOGY INTERN ERNST & YOUNG — JUL – AUG 2020

- Assisted in the development of a client-facing web application
- Helped implement an automatic file upload feature on an internal web application
- Devised and presented a marketing strategy for a third-party risk management solution

SOFTWARE DEVELOPMENT INTERN OPTUM — JUN – AUG 2019

- Coded in Java and JavaScript to create an algorithm which matches students to a certain number of different career sessions with limited seats based on the students' preferences in order to help automate a nonprofit's process for preparing for one of their frequent events
- Collaborated with four interns to implement the solution as a full stack web application hosted on Azure and communicated with the client weekly to get continuous feedback
- Created the entire user guide for the application and taught the client how to use the application when delivering the product on site
- The application is being used by the nonprofit for each of their Career Day events and resulted in saving the small staff 30+ hours of work yearly

PROJECTS

SOLO PROJECTS

- Created a personal website, written in HTML, JavaScript, and CSS, focused on producing a clean, intuitive interface which works fully on any screen size
- Created an imaginary pet adoption web application using the Express framework, Pug, the Google Maps API, and two JSON files in the back end
- Used C to implement 3 versions of an interactive Mandelbrot fractal visualizer to highlight the performance benefits of concurrency and load balancing
- Utilized Python to extract data on the gender breakdown of multiple majors at Notre Dame, visualized the data with a Jupyter Notebook, and analyzed the data to find the trend of the gender breakdown over time for computer science
- Created a 3D fractal generator by writing a MEL script to be executed within Autodesk Maya which displays a GUI to let users create and interact with infinite different 3D fractal models
- Utilized C++ and the "gfx" graphics library to recreate "Snake" and to implement invented "Avoid the Balls" where the user's cursor must evade balls of random sizes and velocities

GROUP PROJECTS

- Created a web application, with separate User and Admin views, integrated with a MySQL database via PHP as a solution for a nonprofit organization's volunteer signups
- Simulated a pharmacy with C++, utilizing arrays and queues to track pill type, quantity, and expiration
- Created a C++ implementation of the Heavy-Hitter algorithm and used the implementation to analyze 3.5 million pieces of real-world data in under 20 seconds

EXPERIENCE

TEACHING ASSITANT UNIVERSITY OF NOTRE DAME — AUG 2019 – PRESENT

- TA for Fundamentals of Computing (FA19), Data Structures (SP20), & Theory of Computing (FA20)
- Work with students to clarify misconceptions, effectively debug, and help them understand data structures, C++ concepts, and the theoretical side of computing
- Give the students constructive feedback to increase the accuracy and efficiency of their assignments