JOSH HENRIQUES

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Education

Bachelor of Engineering: Engineering Physics (GPA: 3.3)
McMaster University - Hamilton, ON

Relevant Courses: Data Structures and Algorithms, Embedding and Programming a Micro Controller, Applied Linear Algebra, Software Eng. Profession and Practice, Engineering Computation, Numerical Methods for Engineers

Skills

Programming Languages: Python, JavaScript, C, C++, C#, HTML/CSS

Technologies/Tools: Flask, Matlab/Simulink, SQL, Bash Scripting, UNIX, Git, .NET, MS Office Suite

Experience

Teaching Assistant
09/2022 to Current

McMaster University – Hamilton, Ontario

- Help students implement software tools to solve complex physics problems
- Assisted teachers with classroom management and document coordination to maintain positive learning environment.
- Partnered with teacher to plan and implement lessons following school's curriculum, goals, and objectives.

Software Engineer
09/2021 to 04/2022

Healthcare Systems R&A Inc. – Remote

- Worked in an iterative SDLC environment with the goal of processing, analyzing, and classifying motor imagery electroencephalograph (EEG) signals in Python; To be implemented in a stroke rehabilitation interface
- Performed various data processing and feature extraction techniques using numpy, pandas, and scipy
- Utilized tensorFlow and keras to design and optimize convolutional neural networks that can classify the signal into various motor imagery movements; Achieved accuracy of >90%

Software Engineer
09/2020 to 08/2021

McMaster Experimental Reduced Gravity Team – Hamilton, Ontario

- Developed software to analyze video footage of the fuel in fuel tanks for a zero-gravity flight to determine how slat-screens affect fluid sloshing in zero-gravity
- Utilized Python and the OpenCV library to analyze the video footage and output the data to Microsoft Excel
- Data collected was published in the paper titled: *An experimental investigation of slat-screens to mitigate fluid sloshing in microgravity*

Projects

Global Song Recommender

• Used spotify user data, cosine similarity, and data filtering to recommend songs from across the globe

• Used scikit-learn and pandas for data processing. Used Flask to implement the algorithm. View code Here

Zen Sudoku

• Created a Sudoku app with three difficulties and infinite levels for relaxed puzzle solving

• Used C# and .NET MAUI to create UI and functionality. View code Here

CANDU Reactor Control

• Implemented PID control on a simulated nuclear reactor with an MSP microcontroller to maintain power levels in the reactor

• Used C to program the MSP microcontroller to automate the control system. View code Here