VISHNU BANNA

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Skills: Data and Image Processing, Machine Learning, Circuit Design, Library Programming

Programming Languages: Python, C, C++, Swift, JavaScript, TypeScript, and Thumb2 Assembly Language
Technologies: Angular 8, Firestore DB, Flask, Pandas, Regular Expressions, and TensorFlow

EDUCATION

Computer Engineering GPA: 4.0/4.0
Purdue University, Junior Anticipated December 2021

Relevant Course Work: Advanced C programming, Data Structure, Introduction to Circuit Design
Current Course Work: Algorithms, Python for Data Science, Embedded Programming, Machine Learning Research

PERSONAL PROJECTS

Skull Stripping Tool Website, Personal Project **January 2020 – Present**

- Designed, developed, and trained a custom **Deep Neural Network** for **image segmentation** and brain tissue classification on MRI volumes in order to remove the skull and other noisy MRI features for research and medical purposes
- Programmed a **Rest API** using Flask to interface with frontend to process and Skull Strip MRI Volumes submitted by users
- Integrated **Firebase Realtime DB** and **Google Cloud Storage** services into backend Rest API to manage data flow from frontend to backend
- Utilized **Angular 8** for frontend UI with file selection, drag and drop, file download, and neural network progress indicator
- Deployed backend to Google Cloud VM web server
- Implementing frontend error checking and re-developing Neural Network architecture to fit tighter memory constraints and increase speed on lower power hardware

Huffman Compression Application, Personal Project **December 2019 – January 2020**

- Designed and Programmed Huffman file Compression Command line Application in **C++** using various Data Structures programmed from scratch
- Converted a Huffman file compression Command Line Application into a String Compression Static Library
- Utilized **Swift** Programming and C++ String Compression Library to build a GUI application to compress files on MacOS

Stock Trading Command Line Application, Personal Project **May 2019 – August 2019**

- Worked with a friend to develop a tool that can automate stock trading in python by using various price indicators to detect trends and provide buy, sell, and hold signals
- Utilized TensorFlow to make a Dense Neural Network that tries to predict stock trends using current market data
- Used **Python** to graph data and look for correlations that could be leveraged into a trading strategy
- Automated back testing of strategies for up to 2000 days of previous data

WORK EXPERIENCE

Machine Learning Research, CAM2 Purdue University **January 2020 – Present**

- Researching methods to vectorize code segments using **Natural Language Processing** in order to maximize information density and maintain variable relationships for the process of code analysis and logical error detection
- Developing a Neural Net to reorder a variable length input sequence using an input text as context to dictate how the input sequence should be reconstructed

Engineering Intern, Dialog Semiconductors **July 2019 – August 2019 and December 2019 – January 2020**

- Designed a **Library in C** to interface with LabView 2014 and Process long hexadecimal strings
- Converted old LabView programs to Python Command line Applications to increase the amount of test that can be run at a single time

Software Engineering Lead, EPICS Purdue University, project: MOBI **August 2018 – May 2019**

- Collaborated and lead members from various majors to develop a working braille e-reader
- Designed and Implemented an **image processing** system using OpenCV, capable of detecting mechanical failure and ending tests in order to save time, and enable further automation of the testing process
- Directed the Development of **Code and Circuitry** for a device that tested braille pins up to 10000 cycles, allowing designers to improve braille pin design quickly and speed up product development

Personal Interests

- Music Production: Create Melodies, beats and backgrounds that I combine into songs that I share on Soundcloud
- Music Performance: Performed Vocal Solos for the multiple Purdue Jazz Band
- Photo Editing: Take and edit pictures of places and objects that I find to be interesting

LinkedIn: www.linkedin.com/in/vishnubanna/ **GitHub:** www.github.com/vishnubanna