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Minh D. Nguyen

Education

Tufts University
Computer Science (BS), *May 2019*
GPA: 3.94

Skills

- Languages: Python, C, C++, JavaScript, HTML, CSS, Erlang, Matlab
- Frameworks: Qt, PyQt, jQuery, Node.js, Bootstrap, Twisted, TensorFlow
- Software: Git, valgrind, GDB, pylint
- OS: Linux, OS X, Windows

Experience

EditShare, LLC — **Watertown, MA**
Software Engineering Intern — *May 2017 - August 2017*

- Implemented a new storage solution based on a Linux file system
- Implemented a server API using Twisted Perspective Broker framework to handle Remote Procedure Calls (RPCs)
- Created a cross-platform Graphical User Interface application using the Qt and PyQt frameworks allowing users to make RPCs to the server API

Tufts University Human - Robot Interaction Laboratory — **Medford, MA**
Research Intern — *October 2016 - April 2017*

- Implemented the Python version for the neural field model for real time speech perception project
- Re-implemented the neural field model program using TensorFlow for better scalability and efficiency given the initial implementation of the model in C++
- Doubled the maximum size of the sound data set processable by the model by using sparse tensors
- Modularized the implementation of the neural network by utilizing tensor slicing and joining, allowing the model to support any given number of neural field layers
- Participated in discussions on how to improve the prediction accuracy of the model

Hanoi University of Science High School for Gifted Students (HUS HSGS) — **Hanoi, Vietnam**
Computer Science Olympiad Team Trainer — *May 2016 - August 2016*

- Prepared the HUS HSGS Computer Science Olympiad Team, one of the best in Vietnam, for national and international competitions such as the International Olympiad in Informatics
- Taught how mathematics concepts and theorems such as the Hall's marriage theorem or the invariant principle can be applied in computer science
- Introduced the students to various advanced data structures, such as Binary Indexed Tree and Interval Tree, and their applications

Projects

Gomoku AI
Python and C++ program

- Built two different Artificial Intelligence (AI) programs that can play the game Gomoku
- Implemented the first AI using a move score calculation rule based on a defensive strategy, which followed 80% of predicted moves
- Implemented the second AI using the Minimax Algorithm to determine the best possible move under the assumption that the opponent also played an optimal game
- Researched how a third AI can be implemented using deep learning

Trailer Nailer
Web application

- Built a web game that allows players to test their movie recognition ability by watching trailers
- Stored information of roughly 200 movies from 5 different genres using MongoDB, and implemented a web server using Node.js to respond to movie information queries
- Embedded in-game movie trailer videos through YouTube Player API
- Enabled players to log in to Facebook, introduce the game and send challenges to friends using Facebook API

Image Compressor and Decompressor
C program

- Used quantization of pixels and bit-level manipulations to compress each 2x2 pixel block into a 32-bit word.
- Reduced (on average) 66.7% in image size in compression
- Restored (on average) 98.2% of the original image in decompression

Scanned Document Black Edge Remover
C program

- Identified black edge pixels in the image of a scanned document using depth first search
- Replaced black edge pixels with white pixel for better image quality