Ryan Hua

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EDUCATION

Virginia Tech **May 2024**
Bachelor's, Computer Engineering, Major in Machine Learning, Minor in Music-Technology *GPA: 3.61*

- **Relevant Courses:** ECE 3514 - Data Structure and Algorithms, ECE 4424 - Machine Learning, ECE 4524 - Artificial Intelligence and Engineering Applications, ECE 4554 - Intro to Computer Vision, ECE 3574 - Applied Software Design

EXPERIENCE

Triple Point Security **Blacksburg, VA**
Cybersecurity Intern *February 2022 - May 2022*

- Actively collaborating within a cohort to accomplish six major deliverables.
- Gained hands-on experience with Virtual Machines, CLI and GUI operations related to Cyber Security and Networking. Additionally, utilized Wireshark to capture and analyze packets, assessing inbound and outgoing connections, including SSH, telnet, FTP, and apache2.

PROJECTS

Linear Classifier Experiments (Python)

- Worked on training algorithms and prediction functions for perceptron and logistic regression models in Python.
- Conducted experiments using synthetic and real medical datasets in Jupyter Notebook to explore the effectiveness of various linear classifiers for multi-class classification in basic machine learning scenarios.

Twitter Sentiment Analysis (Python)

- Built two python programs that evaluate a tweet and determine if positive or negative using Naïve Bayes and binary logistic regression.
- Ran experiments to compare which was more efficient at determining the outcome by using Precision, F-score, etc.

Lisp Interpreter (C++)

- Developed a C++ program to evaluate the syntax of a programming language based on given rules/notations, providing the corresponding semantics (numeric meaning of the sequence).
- Employed CMake for unit testing and code coverage, ensuring robustness and reliability throughout the development process.

Low-Power Tamagotchi on Microcontroller (Embedded C)

- Developed a low-power Tamagotchi game on a MSP432 microcontroller using Embedded C, integrating interrupt-driven architecture and hardware timers for application efficiency and button controls.

Personal Website with Audio Acoustics Section (HTML/CSS, JavaScript)

- Designed and developed a personal website using HTML and CSS to showcase projects
- Created an informative blog called "Audio Acoustics", delving into music and sound principles.

Tic-Tac-Toe (C++)

- Developed a program utilizing a minimax strategy to find the optimal ending state of a given Tic-Tac-Toe board.
- Implemented the Breadth-first search algorithm with an iterative double-ended queue to achieve efficient exploration of game states.

MIPS Interpreter (Python/ Assemble Language)

- Created a Python-based MIPS interpreter capable of processing assembly language input and converting it into basic machine code.

Wireless Sensor Node (Arduino, LTSpice, C++)

- Worked in team to design a boost converter to amplify a 5V input from a solar panel to charge a battery.
- Programmed Arduino microcontroller to connect to an external system through Bluetooth to transmit temperature reading of room.

SKILLS & INTERESTS

Skills: Computer Vision, C#, Jupyter, Git, HTML/CSS, Linux/Unix, C/C++, Python, Verilog, LTSpice

ACHIEVEMENTS

Boy Scouts of America
Eagle Scout Award: Highest rank in BSA that shows leadership, service, and spirit