Nicholas McClellan

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Education

Colorado School of Mines Golden, CO

Bachelor of Science in Computer Science (GPA: 3.5) *Aug. 2018 – Dec. 2021*

- **Certificate**: Specialty in Computer Engineering
- **Programming Courses**: Data Structures, Algorithms, Operating Systems, Networking, Machine Learning
- **Electrical Engineering Courses**: Circuits, Digital Logic, Embedded Systems, Information Systems & Signals

Projects

Personal Website | *HTML, CSS, Git, GitHub Pages*

- Created a static web page using HTML5 and CSS3 to showcase additional projects and information about myself.

NLP Web-Scraper | *Python, Django, PostgreSQL, PRAW API, Automation*

- Developed a web scraper to collect, clean, and present text post data relating to a dynamic list of keywords using Django, Python, and the Python Reddit API Wrapper (PRAW) API.
- Automated the collecting, cleaning, and uploading of several thousand lines of data to a PostgreSQL database as a background process occurring hourly to guarantee users only interact with the most recent data.
- *In Development*: Analyzed the stored data using machine learning libraries and techniques such as NLTK and scikit-learn to provide more valuable insight and visualizations to users.

Language Learning App | *Flutter, Dart, Firebase, Cross Platform*

- Produced the splash screen, navigation system, and numerous activity templates to assist a local language school in transitioning from a physical workbook to a mobile application using Flutter and Dart.
- Utilized several iOS and Android emulators alongside Flutter, a cross-platform framework, to ensure that a majority of students could access the application.
- Enabled Firebase for future user authentication and maintained lesson data locally in a NoSQL database to allow for offline access of unlocked content.

Learning Universal Remote | *C, SWIG, PIC Microcontroller, Oscilloscope, Multimeter*

- Developed routines to receive, clone, and re-transmit IR signals from a donor remote to create a remote control that could effectively learn key presses, all on a hand-assembled circuit board.
- Captured and stored the received IR signals as 32-bit values via an IR decoder and a module on the PIC microncontroller, the enhanced Capture/Compare/Pulse-width Modulation (ECCP), set to capture.
- Translated and reproduced the stored signals using a timer (TMR) and another ECCP module, this time configured to perform pulse-width modulation on an IR transmitter to reconstruct the original signal.

Sensor System 'Bop-It' Clone | *Python, Raspberry Pi3, Matplotlib, NumPy*

- Designed and implemented a Bop-It style game by constructing a circuit consisting of a Raspberry Pi, sensors such as an accelerometer and a potentiometer, and colored LEDs.
- Stored and maintained all sensor states during gameplay using NumPy to determine if the user's choice matched the instructions necessary to progress the game, given by the colored LEDs.
- Visualized metrics such as score, instruction frequency, and reaction time using the stored sensor data, an analog-to-digital converter, and the python library Matplotlib.

Skills

Languages: (Proficient): Python, C/C++, Flutter/Dart, PostgreSQL (Familiar): Java, HTML/CSS/JavaScript
Libraries: (Proficient): NumPy, Matplotlib, pandas, scikit-learn, (Familiar): NLTK, Keras, TensorFlow
Technical: Through-hole and surface-mount soldering, debugging hardware using oscilloscope/multimeter
Tools and Other: Git, Jira, Wireshark/TCPDump, Django, Linux distributions and shell scripting

Work Experience

Statistics (MATH201) Grader *Jan. 2020 – May 2020*

Red Lobster *Apr. 2018 – Aug. 2018*

Angie's Restaurant of Littleton *May 2013 – Aug. 2017*