Matias Tejeda Astaburuaga

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EDUCATION

Purdue University May 2024
Bachelor of Science in Computer Science GPA: 3.46/4
Honors: Fall 2019, Spring 2020, Fall 2021, Spring 2024

PROJECTS

Fan Controller Jan 2024 - May 2024

- Designed and built an embedded system that reads inputs from a digital thermometer and controls a fan's speed accordingly using Pulse Width Modulation for real world dynamic cooling capabilities
- Developed an Android application in Kotlin and XML to implement Internet of Things functionality and wireless access to the fan controller using TCP/IP socket communication
- Written in Python running on a Raspberry Pi

Packet Analyzer Jan 2024 - May 2024

- Developed a packet analyzer for the Linux operating system that intercepts raw packets from the Network Interface Card and displays relevant information in real time
- Coverage includes each layer of the TCP/IP model such as Ethernet headers, ARP and IPv4 headers, and TCP, UDP, and ICMP headers
- Written in C

Java Compiler Jan 2023 - May 2023

- Developed a compiler that dynamically generates executable ARM Assembly code for a subset of the Java programming language
- Written in C/C++ for code generation and Lex/Yacc for parsing the grammar into an abstract syntax tree and symbol table

Custom UNIX Shell Jan 2022 - May 2022

- Developed an UNIX shell that implements a terminal command line which parses and executes user input
- Input can include commands and their arguments, pipes for passing the output of one command as the input for the next, and I/O redirection for files
- Bonus features include handling environment variables, nesting a child shell within a parent shell, and expanding wildcards using regular expressions and recursion
- Written in C/C++ for shell logic and Lex/Yacc for parsing user input

Word Guessing Game Nov 2019 - Dec 2019

- Developed a word guessing game featuring an interactive graphical user interface and animations
- Written in Python using an open-source graphics library

SKILLS

- **Relevant Coursework:** Python Programming, Object-Oriented Programming, Discrete Mathematics, C Programming, Computer Architecture, Data Structures and Algorithms, Systems Programming, Compilers, Computer Security, Operating Systems, Computer Networks, Embedded Systems, Advanced Memory Allocation
- **Programming:** Proficient in HTML/CSS, JavaScript, Python, Java, C/C++, and ARM Assembly
- **Libraries/Frameworks:** Proficient in React.js, Node.js, and Express.js
- **Databases:** Proficient in MongoDB
- **Technologies:** Proficient in Git/GitHub, Visual Studio, Shell Scripting, and Wireshark/Nmap
- **Communication:** Fluent in Spanish, English, and Japanese