

# Matias Tejada Astaburuaga

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## EDUCATION

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### Purdue University

Bachelor of Science in Computer Science

May 2024

GPA: 3.46/4

**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

## PROJECTS

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### Fan Controller | *Python, Kotlin, XML*

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

### Packet Analyzer | *C*

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

### Java Compiler | *C, Lex, Yacc, ARM Assembly*

Jan 2023 - May 2023

- Developed a compiler that dynamically generates executable ARM Assembly code for a subset of the Java programming language

### Custom UNIX Shell | *C++, Lex, Yacc*

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

### Word Guessing Game | *Python*

Nov 2019 - Dec 2019

- Developed a word guessing game featuring an interactive graphical user interface and animations

## SKILLS

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- **Programming:** HTML/CSS, JavaScript, Python, Java, C/C++, and ARM/x86 Assembly
- **Libraries/Frameworks:** React.js, Node.js, and Express.js
- **Databases:** SQL, and MongoDB
- **Tools:** Git/GitHub, Visual Studio, UNIX Shells, and Wireshark/Nmap
- **Communication:** Spanish, English, and Japanese