Jacob Garcia

Software Engineer

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Education

New Mexico Institute of Mining and Technology *Socorro, NM*

Bachelor of Science in Computer Science, GPA: 3.05/4.0 *May 2020*

Graduated with the awards Tech Scholar, and honors.

Skills

Proficient	Matlab, C, Python3, Java, Bash, Github, Linux/Unix based environments, Latex, Microsoft Office
Experience With	Intel x86 assembly, low-level operating system concepts, C++, Javafx, and Cuda
Other Skills	Strong people skills, desktop construction, and operating system install and maintenance

Experience

Energetic Materials Research and Testing Center *Socorro, NM*

Student Engineer *May 2019 - May 2020*

- Developed GUI applications in Matlab for engineers to process data gathered from experiments.
- Implemented parallel processing and variable precision to enhance data processing.
- Developed an application using Java/JavaFX to visualize an experiment with data processing features built-in.
- Worked with Python3, Panda3D, and Tkinter to create a simulation program for explosive tests.
- Contributed to a Department of State final report for fragment tracking software.

National Radio Astronomy Observatory *Socorro, NM*

Student Unix Systems Administrator. *January 2017-August 2018*

- Worked with Redhat 6 and 7 environments.
- Scripted in Bash and some Python.
- Computer building, installation, and maintenance.
- Server maintenance.
- Network troubleshooting.

Projects

C Compiler

- New Mexico Institute of Mining and Technology Computer Science capstone project.
- Group of 4 developers
- Written in python3.
- Used rply library for parsing and abstract syntax tree creation.
- Gimple like structure used as intermediate representation.
- Converts C code to x86-64 assembly.

PushProd

- Clone of the application PushBullet
- Final Project for CSE 324 Software Engineer at New Mexico Institute of Mining and Technology.
- Group of 4 developers.
- Allowed users to log in on multiple devices and share notifications between devices.
- Included a Linux and Windows desktop app, along with an Android phone app.
- The desktop app was built using C++ and the QT framework.
- The Android app was built using java.
- The server back-end is written in Java and used TCP/IP to connect to clients.
- The server was also multi-threaded to increase performance.

BriansBrian

- Final Project for CSE 389 Parallel Computing at New Mexico Institute of Mining and Technology.
- Group of 4 developers.
- Based on Conway's game of life.
- Built using C++ with the Cuda framework for parallel computing.

Nrook Problem

- Final Project for CSE 389 Computational Neuroscience at New Mexico Institute of Mining and Technology.
- Trained spiking neural network to solve the Nrooks problem.
- The spiking neural network used a single layer mapped to each square of a chessboard.
- Hebbian learning was used to train and build weights for the network.
- Written in Python3 using the brian2 framework for the spiking neural network.