Christopher P. Vasquez

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EDUCATION

Louisiana State University (LSU), Baton Rouge, LA **May 2023**
Master of Science, Electrical Engineering *GPA: 4.0*
Bachelor of Science, Computer Engineering
Bachelor of Science, Computer Science
Related Coursework: Multiprocessor Programming, Computer Architecture, GPU Programming, GPU Microarchitecture

EMPLOYMENT

Research Assistant: Neural Networks **November 2022 – Present**
Louisiana State University, Baton Rouge, LA
- Utilized fault injector to measure the reliability of various TensorFlow-based neural network architectures
- Wrote various Python & Bash scripts to automate testing and data collection
- Currently exploring possibilities for mediation of faults' impact on neural network performance

Research Assistant: Hardware Acceleration for R **January 2022 – November 2022**
Louisiana State University, Baton Rouge, LA
- Assisted with the development of a statistical, server-side application funded by the National Science Foundation
- Researched and implemented CPU acceleration via multicore programming for R package (MLMA)
- Implemented LightGBM package to allow for faster model generation via GPU utilization for R Package (MMA)

Software Engineer Intern **May 2021 – August 2021**
Runatek, Dallas, Texas
- Worked on developing the software for a biomedical opioid device known as the SOTIRAS.
- Team lead for the software design and integration of a feedback control loop system into the device
- Developed software for an Arduino NANO, sensors, and actuators to monitor and maintain proper opioid levels

Research Assistant: High Performance Computing (HPC) **December 2020 – December 2021**
Louisiana State University - Center for Computation & Technology, Baton Rouge, LA
- Worked on an open-source, HPC Python project (CMR Project) funded by the National Science Foundation
- Implemented an automated package manager (Spack) into the project to better handle building coastal software
- Designed plug-in with scripts in Docker container to improve the modularity of importing models

SOFTWARE PROJECTS

Fault Injection Analysis for Neural Networks — **Python, Tensorflow, Bash**
CNN Model for Music Genre Classification — **Python, Tensorflow, Keras**
COVID-19 Contact Tracing Mobile Application — **Swift, Bluetooth LE**
Multiple Mediation Analysis Package with GPU Parallelization — **R, LightGBM**
Multilevel Medication Analysis Package with CPU Parallelization — **R**
Shift Reduce Parser Application — **Python, PyQt5**
HPC Application: Coastal Model Repository (CMR) — **Python, Bash, Jupyter Notebook, Docker**
Database System for Flight Delays — **SQL**
Augmented Reality for Composite Manufacturing — **C#, Arduino, HoloLens 2, Bluetooth**
Transaction System with Multicore Programming — **C++**
Encoder & Decoder via Huffman Encoding — **ARM Assembly**
Voltage Amplifier — **Cadence Pspice, Eagle PCB**
Motion Sensor Traffic Light via FPGA — **Verilog**

SKILLS

Languages: C++, CUDA C, Python, C#, Java, Javascript, Dart, R, SQL, ARM & MIPS ASM, Verilog, Bash, Arduino, Swift
Software Tech.: Docker, Tensorflow, Jupyter Notebook, Anaconda, Sparx Enterprise Architect, LightGBM, Cadence Pspice, Eagle PCB, Bluetooth LE, OpenMPI, ONNX, Xilinx Vivado, Vulkan, Unity
Project Management Tools: Git, JIRA, Asana
Environments: Linux, Windows, MacOS, HoloLens 2