

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 Multiprocessor 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++, C, Python, C#, Java, Javascript, Dart, R, SQL, ARM & MIPS ASM, Verilog, Bash, Arduino, Swift, MATLAB

Software Tech.: Docker, Tensorflow, CUDA, Jupyter Notebook, Anaconda, Sparx Enterprise Architect, LightGBM, Cadence Pspice, Eagle PCB, Bluetooth LE, OpenMPI, ONNX, Xilinx Vivado, Vulkan, Unity, Microsoft Office Suite

Project Management Tools: Git, JIRA, Asana

Environments: Linux, Windows, MacOS, HoloLens 2