

## Education

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### Texas A&M University — College Station, TX

Master of Science — Computer Science

01/15/2025 — 05/20/2026

GPA: 3.8

Bachelor of Science — Computer Science

08/20/2021 — 12/15/2024

GPA: 4.0

#### Selected Coursework:

Quantum Algorithms

Deep Learning (PyTorch, Tensorflow, Pandas)

Software Engineering (Ruby on Rails)

Computer Architecture (C++)

Parallel Algorithms (C++, Open MPI, YGM)

Computer Networking (Visual C++)

Operating Systems (C++)

Machine Learning (PyTorch)

Programming Languages (Java, Scheme)

## Work Experience

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### • High Performance Computing (HPC) Software Engineer

05/20/2023 - Present, 25 hrs/week avg

College Station, TX

- Benchmarked multi-core FFT and sparse matmul in C++ (**FFTW**, **oneMKL**) on Intel Optane configured as swap space
- Helped researchers from Fermilab convert their FPGA software simulation Kubernetes workflows to Slurm scripts
- Developed an Open OnDemand interactive application for assisting researchers with programming tasks, utilizing local llm inference to do so. Local inference was distributed across multiple nodes and performed on 4 Intel GPU Max 1100s per node. (Python)
- Shipped an Open OnDemand interactive app to automate ML pipelines with **AutoGluon** on Slurm; standardized job specs and reduced setup time for researchers. (JavaScript / Vue.js / Python / FastAPI)
- Automated the ticketing system by integrating with Slack using the Slack API. Created a robust workflow CLI to allow ticket workflow changes to be made without modifying code. (Python)
- Resolved a wide range of HPC support tickets from researchers, including software troubleshooting, job scheduling issues, and environment configuration across diverse scientific domains
- All development done on RHEL 8 machines

### • iOS Developer

AKW Ventures

05/20/2023 - present, 10 hrs/week avg

College Station, Texas

- Created and maintained backend for "College Football: Rapid Roster" iOS app (Swift / JavaScript / Cloudkit JS)
- Application supports thousands of active users with an average monthly recurring revenue of \$2500

### • Software Engineer Intern

05/20/2024 - 08/01/2024, 40 hrs/week

Atlanta, Georgia

The Coca-Cola Company

- Used Vue.js, Python, Flask, and Pandas to create a web application for segmenting and analyzing 8,861 outlets
- Developed an algorithm which provided 124,054 relevant promotions for outlets

## Research

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### • Parallel Bridge Finding

01/20/2025 - Present

Texas A&M University, under Dr. Roger Pearce

- Developed and iterated upon a novel parallel bridge finding algorithm (graph theory)
- Achieved near linear scaling up to 768 cores - 15.36 times as many cores as the current literature supports
- Distributed computing on Lawrence Livermore National Labs systems, notably Dane
- Implemented in C++ using the YGM library (built on OpenMPI)

## Projects

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### • Temporal Frequency Analysis on CPU, GPU, FPGA

08/20/2024 - 12/15/2024

Texas A&M University capstone project done in collaboration with Sandia National Labs

- Optimized an existing temporal frequency analysis algorithm for CPU, GPU, and FPGA architectures
- Won 3rd place in the Texas A&M Engineering Project Showcase Fall 2024
- Our GPU implementation achieved the highest throughput, achieving a 125x throughput improvement over the original FPGA implementation
- Increased throughput of FPGA implementation by 4.23x
- Used C++, Vitis HLS, CUDA, OpenMP, JavaScript, Express.js, React.js

## Technical Skills

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**DevOps:** Docker, Singularity, Github Actions, Git, GitHub, CI/CD

**Skills:** C++, Python, Java, Bash; CUDA, Open MP, Open MPI, Slurm, YGM; Docker, Singularity, Linux, RHEL 8; Flask, Vue.js, Express.js, React.js, Vim, JSON, AWS

Amplify, AWS Lambda Functions, AWS EventBridge, AWS DynamoDB, MongoDB

**Methodologies:** Agile, Waterfall, Object Oriented Programming, Functional Programming, REST APIs