Keegan Smith

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Education

Texas A&M University — College Station, TX

Bachelor of Science — Computer Science *Aug 2021 — Dec 2024*
GPA: 4.0

Master of Science — Computer Science *Jan 2025 — May 2026*
GPA: 3.8

Work Experience

•High Performance Computing (HPC) Software Engineer *May 2023 - Present*
Texas A&M University High Performance Research Computing 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 *May 2023 - present*
AKW Ventures College Station, Texas

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

•Software Engineer Intern *May 2024 - August 2024*
The Coca-Cola Company Atlanta, Georgia

- 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

•Parallel Bridge Finding *January 2025 - Present*
Texas A&M University

- Developed and iterated upon a novel parallel bridge finding algorithm
- Achieved near linear scaling up to 768 cores - 15.36 times as many cores as the current literature supports
- Implemented in C++ using the YGM library (built on OpenMPI)

Projects

–Temporal Frequency Analysis on CPU, GPU, FPGA *August 2024 - December 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
- * 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
- * Won 3rd place in the Texas A&M Engineering Project Showcase Fall 2024
- * Used C++, Vitis HLS, CUDA, OpenMP, JavaScript, Express.js, React.js

Technical Skills

DevOps: Docker, Singularity, Github Actions
Skills: C++, Python, Bash; CUDA, Open MP, Open MPI, Slurm, YGM; Docker, Singularity, GitHub Actions, Linux, RHEL 8; Flask, Vue.js, Express/React
Methodologies: Agile, Waterfall, Object Oriented Programming, Functional Programming, REST APIs