# Keegan Smith

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## Education

**Texas A&M University — College Station, TX**
*Master of Science — Computer Science / GPA: 3.9 Jan 2025 — May 2026*
*Bachelor of Science — Computer Science / GPA: 4.0 Aug 2021 — Dec 2024*

**Selected Coursework:** Deep Learning (PyTorch, TensorFlow, Pandas), Machine Learning (PyTorch), Parallel Algorithms (C++, Open MPI, YGM), Quantum Algorithms, Computer Architecture, Operating Systems

## Work Experience

**•High Performance Computing (HPC) Software Engineer** *May 2023 – Present*
*Texas A&M University High Performance Research Computing* College Station, TX

- Built an Open OnDemand interactive app for distributed local LLM inference across multi-node jobs using Python (4 Intel GPU Max 1100s per node)
- Shipped an Open OnDemand app to automate ML pipelines with **AutoGluon** on Slurm; standardized job specifications and reduced experiment setup time
- Benchmarked multi-core FFT and sparse matrix multiplication (**FFTW**, **oneMKL**) in C++ on Intel Optane configured as swap; analyzed performance tradeoffs for memory-bound workloads
- Migrated Fermilab FPGA software simulation workflows from Kubernetes to Slurm, improving reproducibility and reducing researcher setup overhead

**•Software Engineer / iOS Developer** *May 2023 – Present*
*AKW Ventures* College Station, TX

- Built **TEC Call Auditor** using AI agents to grade phone calls; achieved 96% production accuracy via prompt engineering and agent orchestration
- Designed cloud deployment on **AWS** (Lambda, SQS, RDS/Postgres, ECS/Fargate, ECR) with Docker + GitHub Actions CI/CD
- Developed a full-stack sports betting analytics platform that detects arbitrage, +EV, and middles opportunities
- Implemented a C++ datafeed pipeline, a Go REST API backend, and a SwiftUI frontend; supported thousands of active users

**•Software Engineer Intern** *May 2024 – Aug 2024*
*The Coca-Cola Company* Atlanta, GA

- Built a Vue.js + Flask web app for segmenting and analyzing 8,861 retail outlets using Python and Pandas
- Developed a promotion recommendation algorithm generating 124,054 outlet-relevant promotions to improve targeting and reduce manual analysis

## Research & Projects

**•Parallel Bridge Finding Research** *Jan 2025 – Present*
*Texas A&M University, under Dr. Roger Pearce* College Station, TX

- Developed and iterated on a novel parallel bridge finding algorithm (graph theory) in C++ with YGM/OpenMPI
- Achieved near-linear scaling up to 768 cores (15.36x more cores than existing literature baselines)

**•M-Height Approximation** *May 2025*
*Texas A&M University CSCE 636 (Deep Learning)* College Station, TX

- Created a large distributed training dataset (approximately 100 million M-height problems and solutions) using OpenMPI
- Trained a dense neural network with 1 million parameters on multiple A30 GPUs and achieved a log loss of 1.20

## Technical Skills

**Languages:** C++, Python, Go, Java, Bash, Swift (SwiftUI), JavaScript
**Machine Learning / AI:** PyTorch, TensorFlow, Pandas, AutoGluon, LLM Inference, Prompt Engineering, Agent Orchestration
**Cloud / DevOps:** AWS (Lambda, SQS, RDS/Postgres, ECS, Fargate, ECR), Docker, GitHub Actions, CI/CD, Heroku
**HPC / Systems:** MPI (OpenMPI), OpenMP, CUDA, Slurm, YGM, FFTW, oneMKL, Linux (RHEL 8), Unix
**Web / Backend:** Flask, FastAPI, Vue.js, React.js, Express.js, REST APIs, CloudKit JS
**Databases & Tools:** PostgreSQL, DynamoDB, MongoDB, Git, GitHub, Vim, GoogleTest