Nathan Calloway

Computer Science Engineer

Phone:	(512) 847-3291
Address:	Austin, TX 78701
Website:	https://nathancalloway.dev
Email:	nathan.calloway@email.com

- Recent Computer Science graduate with hands-on experience building and deploying full-stack applications, RESTful APIs, and distributed systems across two internships and multiple academic engineering projects.
- Reduced API response time by 40% through query optimization and caching strategies during internship at Meridian Software, directly improving platform performance for 12,000+ daily active users.
- Proficient in Python, Java, JavaScript, and C++, with practical experience in cloud deployment (AWS), containerization (Docker), and CI/CD pipelines; built and shipped production code that processed 50,000+ requests per day.
- Strong foundation in data structures, algorithms, operating systems, and database design, complemented by an AWS Certified Developer – Associate credential and a published research paper on predictive caching in distributed systems.

WORK EXPERIENCE

Meridian Software

May 2024 – August 2024

Software Engineering Intern

- Reduced API response time by 40% by refactoring database queries and implementing a Redis caching layer, improving page load speed for 12,000+ daily active users.
- Designed and built 3 RESTful microservices using Python (FastAPI) and PostgreSQL that handled 50,000+ daily requests with 99.7% uptime during a 10-week sprint cycle.
- Wrote 120+ unit and integration tests using pytest, increasing backend code coverage from 54% to 89% and reducing post-deployment bug reports by 25%.
- Collaborated with a cross-functional team of 6 engineers, 2 designers, and a product manager using Agile/Scrum methodology, delivering all sprint commitments on time.
- Automated deployment pipeline using Docker and GitHub Actions, cutting average release time from 45 minutes to 12 minutes per deployment.

Pinecrest Technologies

June 2023 – August 2023

Software Development Intern

- Built a full-stack internal dashboard using React, Node.js, and

TECHNICAL SKILLS

Programming Languages

Python, Java, JavaScript (ES6+), C++, SQL, TypeScript, Bash

Frameworks & Libraries

React, Node.js, Express.js, Spring Boot, Flask, FastAPI, TensorFlow

Databases

PostgreSQL, MySQL, MongoDB, Redis

Cloud & DevOps

AWS (EC2, S3, Lambda, RDS), Docker, Kubernetes, GitHub Actions, Jenkins, Linux

Tools & Methodologies

Git, Jira, Agile/Scrum, REST API Design, Unit Testing (JUnit, pytest), Postman

AWARDS

1st Place, HackTX 2024

HackTX

2024

Built an AI-powered code review tool in 24 hours using Python, TensorFlow, React, and FastAPI; competed against 150+ teams from 20 universities.

Best Innovative Solution, ACM Student Chapter

ACM Student Chapter

2023

Developed a novel indexing algorithm that

MongoDB that consolidated 4 separate reporting tools into a single interface, saving the operations team approximately 6 hours per week.
- Developed a log aggregation script in Python that parsed and categorized 200,000+ server log entries daily, enabling the DevOps team to identify recurring errors 3x faster.
- Implemented JWT-based authentication and role-based access control for 3 internal applications, resolving 2 critical security vulnerabilities identified during a code audit.
- Participated in daily stand-ups and bi-weekly code reviews, receiving commendation from the lead engineer for clear documentation and readable code style.

ACADEMIC PROJECTS

Distributed Task Scheduler | Capstone Project

January 2024 – May 2024

- Engineered a distributed task scheduling system capable of queuing and executing 10,000+ asynchronous jobs across 4 worker nodes with fault-tolerant retry logic.
- Deployed the application on AWS EC2 using Docker containers, implementing health-check endpoints and auto-restart policies that maintained 99.5% availability during load testing.
- Designed a priority-based scheduling algorithm that reduced average job wait time by 35% compared to a standard FIFO approach, validated through benchmarking with 50,000 simulated tasks.

Real-Time Chat Application

September 2023 – December 2023

- Developed a real-time messaging platform supporting 100+ concurrent WebSocket connections with message persistence, typing indicators, and read receipts.
- Implemented end-to-end encryption using the Web Crypto API, ensuring message confidentiality across all client sessions.
- Achieved sub-200ms message delivery latency under load, verified through stress testing with Artillery.io.

EDUCATION

University of Texas at Austin

May 2024

Bachelor of Science in Computer Science | GPA: 3.72/4.0

Relevant Coursework: Data Structures & Algorithms, Operating Systems, Database Management Systems, Software Engineering, Computer Networks, Distributed Systems, Machine Learning, Systems Programming

CERTIFICATIONS

AWS Certified Developer –

March 2024

reduced database query time by 40% on a 1-million-row dataset.

Dean's List

University of Texas at Austin

2022 – 2024

Fall 2022, Spring 2023, Fall 2023, Spring 2024 (4 consecutive semesters).

Associate

Amazon Web Services

Machine Learning Specialization

January 2024

Stanford Online via Coursera

PUBLICATIONS

Optimizing Memory Management in Distributed Systems Using Predictive Caching

March 2024

International Journal of Computer Science

Vol. 15, Issue 3, March 2024. Co-authored with Dr. Linda Morales.

Building Scalable Microservices: Lessons from a Capstone Project

September 2023

Medium.com/tech-insights

15,000+ views; featured in Medium Weekly Digest.