Adithya Bellamkonda

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Education

University of Alabama in Huntsville Expected Graduation: Aug 2027

Bachelor of Science in Computer Science (GPA: 4.00 / 4.00) *Huntsville, AL*

- **Relevant coursework:** Data Structures and Algorithms, Software Engineering, Deep Learning, Operating Systems
- **Organizations**: Data Science And AI Club (Vice President), Association Computing Machinery (Membership Chair), SASE (Society of Asian Scientists and Engineers), ICPC (President)

Experience

Software Development Intern March 2025 - Present

CORVID TECHNOLOGIES *Huntsville, Alabama*

- Designed high-throughput data pipelines using gRPC and Protocol Buffers, achieving a **3x** speedup in message serialization/deserialization, reducing average latency from **150ms** to under **50ms** across **1M+** daily messages.
- Developed real-time signal simulation tools in C/C++, optimizing sensor propagation pipelines to handle classified workloads with up to **10x** spatial fidelity, improving execution time by **35%**.
- Automated Linux-based simulations with Bash and CMake, improving cross-platform build consistency and reducing average compile times by **25%** across heterogeneous HPC environments.

Software Engineering Fellow Aug 2023 - May 2024

MADISON CEO *Madison, Alabama*

- Implemented **6** decoupled microservices using Java and Python with Spring Boot and Flask, handling **12,000+** daily API requests, leading to a **45%** reduction in response latency and a **30%** server load decrease.
- Led a 6-member cross-functional team to deploy a key React-Redux feature, boosting platform engagement to **800+** daily active users, and increasing session time by **20%** within 60 days.
- Optimized **60+** complex MySQL queries, cutting page load times by **65%** and improving database response throughput by **2.8x**. .

Projects

AI/ML Sentiment-Based Trading Bot | *Individual Project (220 hours)*

- developed a real-time SPY trading bot using **FinBERT** sentiment scores on financial news, achieving a **22.3%** annualized return and **Sharpe ratio** of **1.42** in backtests over 5 years .
- Integrated Hugging Face Transformers, Alpaca API, and Lumibot into a live pipeline with **WebSocket-based execution** and **dynamic risk management**, enabling real-time buy/sell automation .
- Enhanced strategy evaluation using quantstats-lumi to generate full performance reports, including **drawdown analysis**, **win/loss ratio**, and **monthly returns**, streamlining tuning and validation.

Distributed Task Queuing System | *Team Project (300 hours)*

- Designed a fault-tolerant distributed job processing system using **Go, Redis, and Docker**, supporting **parallel execution** with retry strategies and a DLQ for failed tasks.
- Enhanced system with **Prometheus** + **Grafana** to track metrics such as queue depth, task success/failure ratios, and worker performance in real time.

Multi-Threaded Web Server | *Individual Work Project (90 hours)*

- Implemented a multi-threaded web server in **C++** with **POSIX Sockets** and Boost. Asio is designed to efficiently handle over **100+** concurrent client connections and support dynamic content generation.

Technical Skills and Activities

Competitive Programming: **ICPC** competitor, **CodeForces**: **Rank 1763 (Expert)** (**Div 3**), Competed in **Div 2**.
Honors: College of Science (CoS) Science Ambassador **(1/1500+)**, College of Science (CoS) CS Ambassador **(1/700+)**
Languages: ***Proficient*** Python (4 years), C++ (3 years), ***Intermediate*** C (3 years), Java (3 years), ***Beginner*** R (2 years)
Databases: MongoDB, Cassandra, InfluxDB, Azure SQL Database, SQL (PostgreSQL & MySQL)
Technologies: Spark, Apache Hadoop, Matplotlib, Django, NumPy, Pandas, Scikit-learn, Seaborn, TensorFlow/Keras, Zipline
Software: AWS (S3:EC2:RDS: LAMBDA), GCP, Langchain, GIT, Docker, Jira, Azure, Terraform, CMake