Nagarjuna Kocharla

Software Engineer

973-975-8193 | arjunkocharla98@gmail.com | GitHub

Professional Summary

Software Engineer with 6+ years of experience building scalable backend systems using **C#**, **.NET Core**, **ASP.NET Core**, **Python**, and **Golang**, with cloud-native architectures on **Azure** and **AWS**. Strong background in distributed, event-driven platforms using **Kafka**, **Event Hub**, **Redis**, **Docker**, and **Kubernetes**, delivering production systems for clients including **Duke Energy** and working directly with the CEO/Founder at CentrAlert on architecture and performance.

Skilled in **API design**, multithreading, and ETL workflows using **C#**, **Python**, **Node.js**, **Django**, and **Flask**. Experienced with databases such as **SQL Server**, **PostgreSQL**, **MySQL**, **MongoDB**, **Cassandra**, **Redis**, and **Elasticsearch**, with strengths in indexing, query tuning, and high-volume data modeling.

Experienced with modern AI systems, including **LLMs**, **embeddings**, **NLP pipelines**, and **agentic** workflows for semantic parsing, job-fit evaluation, and AI-driven content generation. Built AI platforms using **Azure OpenAI**, **Python**, **React**, and **Node.js**, integrating **vector search**, **prompt engineering**, and autonomous agent pipelines across cloud environments.

Technical Skills

Category	Technologies
Programming Languages	C#, Python, Golang, C++, Java, JavaScript, TypeScript, SQL, R
Frameworks & Libraries	ASP.NET Core, .NET Core, Entity Framework, React, AngularJS, Node.js, Django, Flask, TensorFlow, Scikit-Learn
Databases	PostgreSQL, MySQL, SQL Server (MSSQL), MongoDB, Cassandra, Redis, Elasticsearch
Cloud & DevOps	Azure, AWS, Docker, Kubernetes, Terraform, Snowflake, GitHub Actions, Jenkins
Messaging & Data Systems	Kafka, Event Hub, gRPC, Debezium CDC
Tools & Practices	Git, Postman, Application Insights, Kibana, CI/CD pipelines, Agile, XUnit, Linux, Jupyter

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Work Experience

Software Engineer

CentrAlert | Charlotte, NC | *June 2023 – Present*

Emergency Alerting Platform • Distributed Systems • Cloud Engineering

- Served as the primary backend engineer responsible for architecture, optimization, and reliability across **C#**, **ASP.NET Core**, **.NET microservices**, **SQL Server**, and **Redis** caching layers. Oversaw decisions affecting distributed alerting pipelines, geospatial processing, and cloud infrastructure on **Microsoft Azure**.
- Developed high-throughput **ASP.NET Core APIs** supporting geospatial alerting, user targeting, city lookup, and real-time emergency notifications. Implemented structured service layers, optimized serialization, enforced strict validation, and integrated **SQL Server** and **Redis** to maintain low-latency performance.
- Architected distributed ingestion pipelines using **Kafka** and **Azure Event Hub**, implementing idempotent processing, retries, poison-message isolation, and schema validation. Built **C#** consumers and ingestion logic ensuring consistency, deduplication, and traceability.
- Improved backend throughput and reduced API latency by **40–60%** using **Redis** caching, **SQL Server** optimization, connection pooling, async/await patterns, and performance profiling with **Application Insights**, **Kusto**, and **.NET** tools.
- Engineered high-frequency **Azure Functions** using **C#** and **Python** for NOAA/NWS alert ingestion every minute. Implemented concurrency-safe design, fault-tolerant execution, telemetry, and event-driven triggers integrated with **Event Hub**.
- Developed geospatial modules in **C#** for polygon containment, radius filtering, precision correction, and spatial boundary analysis. Built validation dashboards using **React**.
- Implemented secure cloud architecture using **Azure Key Vault**, **RBAC**, **Managed Identity**, encrypted configuration, and identity-based authentication.
- Collaborated with enterprise clients including **Duke Energy**, resolving backend issues in **C#**, optimizing **SQL Server** geospatial queries, and ensuring platform reliability during high-severity alerts.
- Built multithreaded processing components in **C#** and **Python** to parallelize alert ingestion, speed up geospatial computations, and improve throughput during high-volume NOAA/NWS event bursts.

Software Engineer (Internship)

CAMP Systems International | Merrimack, MA | *May 2022 – August 2022*

Aviation Maintenance • Backend APIs • React Dashboards • FAA Data

- Built backend systems using **C#**, **ASP.NET Core**, **SQL Server**, **PostgreSQL**, and **Python** supporting aviation maintenance, defect tracking, scheduling, and FAA compliance workflows.
- Developed **ASP.NET Core APIs** powering fleet operations and reporting systems. Implemented typed DTOs, abstraction layers, and optimized database interactions across **SQL Server** and **PostgreSQL**.
- Built **React** dashboards for defect analytics, fleet status tracking, and compliance insights using **JavaScript** and **TypeScript**.
- Created **Python** pipelines for normalizing, validating, and reconciling FAA datasets with data integrity, schema checks, and QA automation.
- Improved database performance (**30–50%**) by tuning stored procedures, rewriting heavy joins, restructuring indexes, and optimizing execution plans across **SQL Server** and **PostgreSQL**.
- Enhanced observability using centralized **.NET Core** logging, **Application Insights**, telemetry, and exception middleware. Contributed to CI/CD workflows using **GitHub Actions**.

Software Engineer

Tata Consultancy Services (TCS) | Hyderabad, India | *April 2019 – July 2021*

Enterprise Integrations • ETL Pipelines • API Middleware • AngularJS

- Delivered enterprise integrations and backend automation for telecom and financial clients (including **British Communications**) using **C#**, **Python**, **SQL Server**, **REST APIs**, and **AngularJS**, designing multi-system data flows and ETL pipelines processing **millions of daily records**.
- Built high-volume ETL pipelines handling validation, transformation, schema enforcement, deduplication, and SQL ingestion. Optimized **stored procedures**, indexing, execution plans, and batch jobs, improving throughput by **up to 3×**.
- Developed **RESTful middleware** in C# enabling communication between legacy systems and modern services, creating reusable integration components such as mappers, serializers, authentication modules, and service connectors.

- Implemented retries, exponential backoff, transaction logging, and error isolation for distributed ETL workflows, and built **AngularJS** dashboards for monitoring job status, metrics, and diagnostics.

Graduate Assistant

University of Massachusetts | Lowell, MA | *October 2021 – July 2022*

- Supported faculty and students using **Python**, **SQL**, **Pandas**, and **NumPy** for grading automation, data preprocessing, and debugging across graduate-level CS courses.

Peer Tutor, Data Science

University of Massachusetts | Lowell, MA | *October 2021 – January 2022*

- Tutored students in **Python**, **Pandas**, **NumPy**, **SQL**, and ML fundamentals (regression, classification, EDA) using **Scikit-Learn** and **Jupyter**.

GitHub Projects

Resume Helper AI — Full-Stack Agentic Platform

- Built an AI-driven resume platform using **React**, **Node.js**, **Python**, **Azure Functions**, and **Azure OpenAI**, implementing **LLM** rewriting, **embeddings**, semantic scoring, vector similarity search, and agentic multi-step workflows with secure PDF generation and real-time content previews.

Custom Order Book Engine — C++ (Low-Latency Systems Project)

- Developed a high-performance limit order book in **C++** with deterministic matching, custom memory pools, cache-efficient structures, and lock-free processing using **std::atomic**, **CAS**, and **ring buffers**, benchmarked with microsecond-level profiling via **perf** and **valgrind**.

Education

Master of Science in Computer Science

University of Massachusetts at Lowell, MA | *August 2021 – May 2023*

Bachelor of Technology in ECE

SNIST, Hyderabad, India | *August 2015 – May 2019*