Aniketh Chinnachinnanagari

Full Stack Engineer
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Professional Summary

Senior Software Engineer with 5+ years of experience building Python-centric backend, cloud-native, and GenAI-powered systems in production. Strong expertise in Python microservices, LLM pipelines, RAG architectures, AI automation, and event-driven systems, with hands-on AWS deployment experience. Proven ability to modernize legacy platforms, reduce latency up to 90%, automate high-volume workflows, and deliver HIPAA-compliant healthcare and enterprise AI solutions. Experienced collaborating across product, data, and ML teams with light exposure to Java-based enterprise systems.

Education

Master of Engineering in Computer Science **Aug 2022 – Apr 2024**
University of Cincinnati, USA

Professional Experience

Marquis Labs - Oklahoma, OK USA **Aug 2024 – Present**
Sr. Software Engineer

- Rebuilt a legacy claims platform as a Python (FastAPI) full-stack application, reducing claim-view response times from 60s to <6s (90% improvement) and supporting 3× higher concurrent user load across lab operations.
- Optimized SQL Server workflows using CTEs, stored procedures, indexing, and batching, cutting order management and billing queries from 3–5 minutes to 10–12 seconds (≈95% reduction) and accelerating revenue cycle processing.
- Developed Python integration services with ClaimMD APIs and Labgen LIS, enabling near real-time (~60s) claim status updates and reducing manual reconciliation effort by ~80%.
- Built GenAI inquiry intelligence pipelines using Python, LangChain, and AWS Bedrock, automating summarization, intent extraction, and classification for 1K+ monthly inquiries.
- Implemented a hybr id RAG + rule-based lead-scoring system, improving inquiry prioritization accuracy by ~35% and increasing response conversion rates by ~20%.
- Deployed backend and GenAI services on AWS (Lambda, ECS, EC2) with Bedrock-based inference and SageMaker pipelines, supporting auto-scaling AI workloads and reducing infrastructure costs by ~30%.
- Automated internal communication workflows that generated inquiry summaries and response drafts, reducing manual review time by **~50%** and improving response consistency across sales and operations teams.
- Designed structured zero-shot and few-shot prompt templates with guardrails and fallback logic, reducing hallucinated outputs by **~40%** and improving LLM response reliability.
- Automated financial reconciliation and reporting using Python, SQL Server, and Power BI, integrating external banking APIs to improve reconciliation accuracy and increase data availability by ~50%.
- Led development of a HIPAA-compliant EMR platform using FastAPI and React, replacing legacy systems and delivering ~$90K in projected annual cost savings.

Cincinnati Children's Hospital Medical Center – Cincinnati, OH USA **Jul 2024 – May 2025**
AI Researcher

- Curated, cleaned, and structured 140+ public histopathology datasets using Python and SQL, enabling large-scale AI experimentation across organs, stains, imaging modalities, and resolutions.
- Evaluated 1M+ histopathology images using PyTorch, TensorFlow, and OpenCV, validating annotations, image quality, and metadata to ensure ML-ready datasets.
- Implemented dataset versioning, reproducibility checks, and metadata lineage tracking, achieving 100% repeatable evaluations across research experiments.
- Built Python preprocessing and evaluation pipelines to standardize ingestion, normalization, and quality scoring, reducing dataset preparation time by ~50%.
- Designed metadata schemas covering 20+ tissue types and 10+ staining protocols, improving dataset discoverability and reuse across research teams by ~60%.
- Identified data gaps in ~30% of datasets using statistical analysis and visualization, informing dataset selection and improving downstream model robustness.
- Performed 10+ years of trend and time-series analysis on digital pathology data using Python and R, guiding selection of state-of-the-art imaging datasets.
- Built centralized dataset repositories using SQL, AWS S3, Snowflake, and BigQuery, reducing dataset retrieval time by ~40%.
- Implemented Python ETL workflows for metadata ingestion and versioning, improving auditability and long-term usability of research data.
- Collaborated with clinicians and ML engineers to translate medical research goals into measurable dataset evaluation criteria aligned with clinical relevance.

People Tech Group Inc. – Redmond, WA USA **Nov 2023 – Apr 2024**
Software Developer

- Built a Python-based document intelligence platform using FastAPI, AWS Lambda, ECS, and Textract, reducing manual document verification effort by ~60%**.**
- Developed end-to-end document processing pipelines handling ingestion, validation, transformation, and persistence, supporting high-volume document workflows**.**
- Integrated ML-based OCR enhancement using PyTorch and OpenCV, improving text extraction accuracy for financial and healthcare documents by ~25%**.**
- Implemented GenAI-powered document understanding using LLM APIs and LangChain, enabling automated summarization and downstream classification.
- Designed asynchronous and parallel processing pipelines, increasing document throughput by **~10×** under peak workloads.
- Built REST APIs using FastAPI and Flask to expose document status, extracted fields, and AI insights to downstream systems.
- Implemented event-driven processing with Kafka, improving system fault tolerance and scalability across dependent services.
- Orchestrated GenAI workflows with Kafka and async Python services, enabling non-blocking summarization and classification at scale.
- Optimized SQL queries and persistence layers, reducing query latency and improving system stability under heavy load.
- Productionized AI pipelines with logging, monitoring, retries, and error handling, ensuring reliable enterprise deployments.

Cognizant – Hyderabad, TG India **Now 2021 – Jul 2022**
Software Developer

- Built and supported Python-based backend and full-stack systems, improving end-to-end transaction performance by ~50%**.**
- Developed Python automation scripts for data validation, log analysis, and batch processing, reducing manual operational effort by ~40%**.**
- Migrated services to AWS Lambda, lowering infrastructure costs by ~45% while maintaining 99.9% uptime.
- Implemented CI/CD pipelines using Jenkins and Git, reducing release cycles by ~75%**.**
- Designed event-driven and asynchronous workflows to reliably process high-volume transactions.
- Integrated data across SQL Server, DynamoDB, and Redshift to support reporting and near real-time analytics.
- Supported production ML and automation services with containerization and monitoring, improving deployment stability.
- Deployed containerized services using Docker and Kubernetes (EKS) with auto-scaling and monitoring.
- Improved data consistency using SQL replication and persistence strategies, ensuring high availability across services.
- Resolved production issues through cross-team collaboration, improving system reliability and observability.

NSLHUB (Brane Enterprises Pvt Ltd) – Hyderabad, TG India **Feb 2021 – Aug 2021**
Software Developer

- Built Python-based backend services and workflow-driven applications, supporting scalable business automation.
- Developed workflow orchestration and retry logic, reducing manual monitoring effort by ~40%.
- Implemented event-driven pipelines using Kafka, reducing end-to-end workflow latency by ~70% during peak loads.
- Optimized SQL schemas and indexing strategies, improving query performance by ~40%.
- Built operational monitoring utilities for job tracking and failure classification, reducing incident detection time.
- Automated batch scheduling using Airflow-style DAG patterns, improving pipeline reliability and observability.
- Integrated CI/CD pipelines, reducing release cycles by ~60%.
- Supported production deployments and refactored legacy components to improve system stability.
- Authored backend documentation and runbooks, reducing onboarding time for new engineers.

M-DIGITAL TECH – Hyderabad, TG India **Jan 2020 – Feb 2021**
Software Developer

- Built and enhanced Python-based full-stack applications, improving system responsiveness and reliability.
- Developed backend services for data ingestion and validation, ensuring reliable frontend–backend communication.
- Implemented REST APIs, reducing data exchange latency by ~30%**.**
- Optimized database schemas and SQL queries, reducing execution time by ~50% for critical endpoints.
- Automated backend validation and batch processing, reducing repetitive manual tasks.
- Containerized services using Docker, simplifying deployments and environment portability.
- Implemented CI/CD workflows, reducing release cycles by ~30%.
- Debugged production issues and refactored legacy code to improve stability.
- Assisted with frontend integration using modern JavaScript frameworks.
- Documented APIs and deployment workflows, improving team knowledge sharing.

Technical Skills

- **Programming Languages**: Python, SQL, JavaScript, Java, C#, Dart, R, Bash, HTML, CSS
- **Backend & APIs**: FastAPI, Flask, RESTful APIs, Microservices, Asynchronous Processing
- **Frontend Technologies:** React.js, JavaScript UI Integration
- **GenAI & LLMs:** LLM APIs, LangChain, Prompt Engineering (Zero-shot, Few-shot), Retrieval-Augmented Generation (RAG), Embeddings, Similarity Search, Intent Classification, Text Summarization
- **Machine Learning & AI:** PyTorch, TensorFlow, Model Evaluation Pipelines, Data Quality Assessment
- **Computer Vision & OCR:** OpenCV, OCR Processing, Image Preprocessing, Layout Analysis
- **Databases & Data Engineering:** SQL Server, Relational Databases, Advanced SQL (CTEs, Stored Procedures, Indexing), ETL Pipelines, MongoDB
- **Event-Driven Systems:** Apache Kafka, Message Queues, Event-Driven Architecture
- **Cloud & Data Platforms:** AWS (Lambda, S3, Textract), Snowflake, Google BigQuery
- **DevOps & CI/CD:** Docker, Kubernetes (EKS), Jenkins, Git-based CI/CD
- **Analytics & Visualization:** Power BI, Matplotlib, Seaborn, Exploratory Data Analysis, Time-Series Analysis
- **Vector Databases & Search:** Vector Indexing, Embedding Storage, Similarity Retrieval
- **LLM Evaluation & Operations:** Output Evaluation, Latency & Token Monitoring, Hallucination Mitigation
- **MLOps / LLM Ops:** Model Versioning, Deployment Pipelines, Runtime Monitoring
- **API Security & Testing:** Authenticated APIs, Secure Integrations, Unit & Integration Testing
- **Security & Compliance:** HIPAA-Compliant Systems, PHI-aware Data Handling, Secure AI Integrations

Certifications

- Azure Fundamentals from Microsoft **Apr 2023**
- AWS Certified Solutions Architect – Associate **Feb 2022**
- Advocated for the establishment of clubs and Co-founded several undergraduate clubs **Jan 2020**
- Architecting with Google Compute Engine (GCP) **Aug 2019**
- QEEE Certification in Programming in C and Data Structures **Nov 2017**

Projects

- **Rental Marketplaces:** Built a rental platform with Flutter, Firebase, and Google Cloud Run, handling 20K+ user interactions with 99.98% uptime. Integrated Google Places API for faster searches, automated social media postings, and NLP-driven responses, boosting engagement by 40% and reducing manual interactions by 70%.

- **Image Denoising using Autoencoder:** Developed model using PyTorch reconstructing 92% of noisy images, enhancing denoising accuracy by 20% and reducing cost by 30% with hyperparameter fine-tuning.

- **Debt Tracker:** Developed a real-time tracking of owed funds and pending repayments achieving a 35% increase in user satisfaction, while achieving a 25% reduction in server response time by optimized AWS deployment strategies.

- **Breast Cancer Classification with Keras and Deep Learning:** Devised a model with 98% accuracy using Python, reduced diagnosis time by 35%, and took the initiative to increase accuracy by 15% via data augmentation.

- **Retail Store Management:** Built a data management system boosting productivity by 30%, reduced errors by 25%, saved $10k annually through improved vendor negotiations, and attained 95% customer satisfaction.