

VENKATA HARSHITHA BATHALA

Phone: +1 (682)-251-0308 | Email: bathalaharshitha89@gmail.com | LinkedIn: [LinkedIn](#) | GitHub: [GitHub](#) | Portfolio: [Portfolio](#)

PROFESSIONAL SUMMARY

Software Engineer with expertise in microservices architecture, cloud-native applications, and AI/ML solutions. Skilled in full-stack development using React, Node.js, and Flask. Experienced with AWS and Azure cloud platforms, SQL/MongoDB databases, CI/CD pipelines, and container orchestration (Docker/Kubernetes). Adept at building scalable, high-performance distributed systems, automating workflows, data pipelines and integrating AI/ML trends to deliver customer-centric, reliable solutions.

EDUCATION

- University of Texas at Arlington** | Master of Sciences in Computer Science – Texas CGPA: 3.9
- Annamacharya Institute of Technology & Sciences** | Computer Science & Engineering - India CGPA: 8.34

EXPERIENCE

Graduate Research Assistant | University of Texas at Arlington 07/2024 – 05/2025

- Designed and deployed **scalable web applications** using HTML5, CSS3, JavaScript, PHP, and MySQL in a **LAMP stack** environment.
- Implemented **secure authentication** and access control protocols, improving system security across **200+ faculty accounts**.
- Consolidated UTA portal information of **500+ inventory items**, policies, forms, and faculty requests.
- Configured **20+ lab systems**, implemented LUKS encryption and Linux security protocols .
- Created **15+ automated Bash scripts** for system maintenance, user management, and access control.
- Optimized virtualization resources and monitored **2 UTA servers** for resource usage and **99%+ uptime**.
- Worked with Debian-based (Ubuntu) and RPM-based (CentOS, Red Hat, Fedora) systems.

Associate Professional Software Engineer | DXC Technology, Chennai 01/2023 – 12/2023

- Developed **scalable microservices** in Java, improving service onboarding time by **30%** through modular, reusable components.
- Designed and optimized **SQL schemas**, improving query execution speed by **25%** and reducing backend processing time.
- Built and scaled **RESTful APIs** integrating enterprise applications with backend services for high-volume data aggregation.
- Streamlined delivery with **CI/CD pipelines** using Jenkins, Docker, and Git, enabling zero-downtime automated deployments.
- Enhanced system reliability with monitoring and alerting solutions, improving incident response time by **20%**.
- Deployed and optimized applications on **AWS with Linux-based infrastructure**, leveraging AWS Lambda, API Gateway and Load Balancers for maximum scalability and uptime.

PROJECTS

Smart HealthCare Hub [Git Repository](#)

- Built **full-stack healthcare platform** for patients, providers, administrators, pharmacists user types with secure RBAC.
- Developed responsive React front-end and PHP/MySQL backend with Axios API communication
- Implemented encryption, secure authentication, role-based access control for healthcare compliance
- Designed scalable database schema with normalized structures and query optimization

Sentiment Analysis on Song Lyrics [Git Repository](#)

- Engineered **NLP solution** for sentiment analysis on **20K+** Spotify song lyrics from an imbalanced dataset, utilizing NLTK preprocessing and nlpaug data augmentation.
- Implemented Word2Vec embeddings with Gensim for feature extraction and semantic analysis of lyrical content.
- Developed BiLSTM model achieving **75%** accuracy; enhanced with BERT transformer to reach **77%** on emotion classification tasks.
- Deployed production-ready real-time prediction API with Scikit-learn evaluation and detailed performance analysis

Assistive Visual Question Answering System [Git Repository](#)

- Developed a multimodal AI system to assist visually impaired users by integrating computer vision and NLP for image understanding and question answering.
- Achieved **71.7%** Top-1 and **98.4%** Top-5 accuracy using PaliGemma-2 embeddings classification model
- Implemented Vision Transformers (CLIP, SigLIP, ViT) with GPT integration reaching **65%** semantic accuracy
- Preprocessed VizWiz dataset (31,000 image-question pairs) using transfer learning and multimodal alignment

Distributed Systems Fault Tolerance [Git Repository](#)

- Implemented **SWIM** protocol for failure detection using gRPC, Python, Docker containers
- Engineered **Two-Phase Commit (2PC)** system with Protocol Buffers for transaction coordination
- Developed **Raft consensus** with leader election and log replication using Docker orchestration
- Created fault injection testing framework simulating network partitions and node failures

TECHNICAL SKILLS

Languages: Python, Java, C/C++, Go
Frontend Development: React, TypeScript, JavaScript, HTML5, CSS3, SCSS
Backend & APIs: Node.js, Django, Flask, Spring Boot, RESTful APIs, Microservices, API Design, gRPC
Cloud: AWS ((EC2, S3, ECS, Lambda, DynamoDB, RDS, SQS, Step Functions), Azure (VMs, Load Balancer, VMSS, NSGs)
Databases: MySQL, MongoDB, MariaDB, DynamoDB, Schema Design, Query Optimization, Data Modeling
Machine Learning & AI: PyTorch, TensorFlow, Keras, Scikit-learn, NLTK, Hugging Face, BERT, Computer Vision, NLP
DevOps: Git, Jenkins, Docker, Kubernetes, Ansible, Bash scripting
Tools: JIRA, Apache, Tomcat, Excel, Power BI, Tableau
OS: Linux, Unix, Windows

CERTIFICATIONS

- AWS Certified Cloud Practitioner
- Microsoft Certified: Azure Fundamentals (AZ-900)
- AIGPE Lean Six Sigma Yellow Belt