NISHITHA MADHU

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EDUCATION

M.S. in Computer Science, ***Northeastern University – Khoury College of Computer Sciences*****,** *Boston, MA* Jan, 2024 – April, 2026

B.E. in Telecommunication Engineering, ***M S Ramaiah Institute of Technology,*** *Bangalore, India* June, 2015 – May, 2019

TECHNICAL KNOWLEDGE

Languages: Python, C, C++, C#, Java, JavaScript, SQL

Frameworks & Libraries: Flask, FastAPI, React, Node.js, .NET, GraphQL, Pandas, Scikit-Learn, PyTorch, Transformers, NLP, LLMs

Databases: MySQL, PostgresSQL, Timescale DB, YugabyteDB, Redis, MongoDB, DynamoDB

Tools & Technologies: AWS, Azure, GCP, Kafka, Celery, Kubernetes, Terraform, ArgoCD, Jenkins, GitHub Actions, Grafana, ETL

WORK EXPERIENCE

Philips, Cambridge, MA Jan, 2025 –Dec, 2025 (12 months)

Software Engineer Co-op

- Engineered a distributed YugabyteDB system for a hospital patient monitoring cloud platform, enabling real-time data ingestion from 10,000+ bedside monitoring devices.
- Optimized C# microservices with a bulk insertion pipeline, cutting processing time by 75% (20s to 5s) for high-volume data streams.
- Orchestrated load testing (10k+ users, 5M+ records) and migration of 120+ tables, 40+ SPs, and 20TB of patient data from MySQL to PostgreSQL with near-zero downtime.
- Spearheaded the research on reducing battery-related alarm fatigue with (AdaBoost, Random Forest, Gradient Boosting), running 5+ PoCs and cutting false alerts by 30%, improving nurse efficiency and patient safety.
- Built an auto-logging tool with GitHub Actions and Azure DevOps Boards to auto-link test cases to requirements and generate release reports, streamlining traceability and accountability.

Biofourmis, Bangalore, India June, 2020 – Dec, 2023 (3.5 years)

Software Engineer (2020-2022) | *Senior Software Engineer (2022-2023)*

- Designed and implemented resilient data pipelines to integrate FDA-approved health monitoring devices into the Remote Patient Monitoring (RPM) platform, supporting up to 10,000 active patients.
- Led the migration of the entire application from AWS DynamoDB to a self-hosted TSDB, significantly reducing the operational costs by 70% and granting enhanced control over the database for fine-tuning and optimization.
- Optimized the loading time of vitals graphs on a web dashboard from 3 minutes to less than 3 seconds by migrating the project from Flask to FastAPI, leveraging its asynchronous nature, improving the clinicians' user experience in monitoring the vitals.
- Engineered EMR/EHR integration systems using HL7 interfaces and FHIR standards on the RPM platform, ensuring encryption, compliance, and interoperability for safe patient data exchange
- Orchestrated CI/CD pipelines using Jenkins and Bitbucket to streamline continuous deployment processes. Implemented testing frameworks and strategies for rapid and reliable feature delivery, ensuring high code quality.

Extreme Networks, Bangalore, India June, 2019 – May, 2020 (11 Months)

Associate Software System Engineer

- Developed new CLI commands, such as 'show tpvm-status history', to log and persist all executed commands on the third-party VM across firmware upgrades, enhancing system reliability and traceability
- Created a Linux bond with a front panel port in active-standby mode on SLX-9150, SLX-9150T, and Celestica platforms using the iproute2 utility, improving network redundancy and failover capabilities

PROJECTS

Clinical Trial Patient Eligibility Classification — NLP, PyTorch, Transformers

- Built a custom Byte Pair Encoding (BPE) tokenizer tailored for medical terminology, reducing out-of-vocabulary (OOV) rate by ~3% compared to pre-trained language models, enabling accurate handling of complex clinical terms and trial criteria.
- Trained an LSTM-based RNN model from scratch to classify patient eligibility based on trial criteria and patient history, benchmarking against BioBERT with ~92% of its F1-score while reducing inference latency by 35% on long-form clinical text.

Paper Publication - Cluster-Based Load Balancing for Cloud Environment, *ISBN: 9781003052098*

- Presented at ICTCS-2019, Udaipur, India; Published in Taylor & Francis;
- Proposed a cluster-based load balancing algorithm to optimize resource allocation and handle dynamic workloads efficiently by clustering both load and available resources.

ON-CAMPUS WORK

- Worked as Graduate Teaching Assistant for Programming in C++ and Database Management Systems at Northeastern University.
- Lead the technical team at Disrupt – The FinTech initiative at Northeastern University.