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, Swing

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 CLI tool with GitHub Actions and Azure DevOps Boards to auto-link test cases to requirements while generating comprehensive release reports, accelerating release cycles.

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 30,000 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, successfully integrating 15+ hospital systems and handling over 200,000 patient records securely.
- Orchestrated CI/CD pipelines using Jenkins and Bitbucket, reducing deployment times by 40% and enabling 3x faster release cycles.

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 - ***Link***

- 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.

TextValult - JavaScript, TypeScript, Web Development - ***Link***

- Chrome extension that lets users highlight text on any webpage and automatically saves it to platfroms like Notion, Docs or Notes.
- Supports storing the URL, date, and highlighted text, making it easy to capture research notes, articles and study material in one piece

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

• Presented at ICTCS-2019, Udaipur, India and 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.