

# Varun Tarikere Shankarappa

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Self-driven and curious software engineer with strong backend development experience in agile environments and languages like Go, Python. Skilled in building and optimizing scalable microservices, leveraging AWS, and streamlining processes. Experienced in delivering high-quality solutions throughout the full software development life cycle.

## EXPERIENCE

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### Graduate Student Researcher

June 2024 - Nov 2024

Human Centered Robotics Lab, Amherst, MA

- Optimized a model for frame-level fault detection in collaborative autonomous systems, processing 30 images per timestep from 5 agents in the DeepAccident dataset.
- Conducted an in-depth analysis of dataset structure and identified key challenges impacting detection outcomes.
- Designed and implemented a denoising-based fault detection model with Vector Quantized GANs and Graph Attention Networks as pre-training, exploring enhanced learning for fault detection in multi-agent autonomous systems

### Software Development Engineer

Aug 2020 - Dec 2022

Eagleview, Bengaluru, India

- Assisted in designing and led implementation of an event-based notification service handling push, email, and iOS notifications via AWS SQS and SNS, supporting 1,000+ concurrent requests.
- Gained proficiency in C# and delivered critical release APIs within one week.
- Delivered 6+ Golang and Python microservices, collaborating with cross-continental agile teams.
- Contributed to migrating a legacy platform to a serverless orchestrator using AWS Step Functions and Lambda, reducing service time from 3 hours to 45 minutes.
- Achieved 60% latency reduction for large file downloads by implementing gRPC stream APIs.
- Enhanced service performance and resolved critical bugs through regular load and performance testing.
- Translated business-critical MATLAB code handling geospatial data to Python, increasing scalability and reducing latency by over 70%.
- Participated in the full SDLC of Assess, an online imagery inspection tool with a \$1M+ projected revenue.
- Proposed OpenTelemetry integration for serverless tracing, improving logging and debugging capabilities.
- Participated in code reviews to ensure clean, tested, readable and maintainable codebase to maintain 90% code coverage.

### Software Development Engineer Intern

Jan 2020 – July 2020

Eagleview, Bengaluru, India

- Delivered 15+ APIs for a critical process and improved API documentation, reducing cross-team dependency and cutting development time by 15%.
- Presented a study on Elasticsearch-Logstash-Kibana (ELK) stack for observability, demonstrating its potential to trace points of failure within 30 minutes and deliver key analytical insights.
- Proto-typed a dashboard to automate version tracking, cutting manual checks and documentation time by 50%.

## SKILLS

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- **Programming:** Golang, Python, SQL, C.
- **Software:** AWS, Docker, Kubernetes, Jenkins, Jira, Confluence, Postman, Git, Postgres, DynamoDB, Pytorch.
- Machine Learning, Serverless Design, Web Development, System Design, Software Development Life Cycle, Testing, Agile Methodologies,, Microservices.

## EDUCATION

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Masters in Computer Science, University of Massachusetts, Amherst

Feb 2023 - Dec 2024

Relevant Coursework: Distributed Systems, Software Engineering, Reinforcement Learning, Internet Security, Advanced Natural Language Processing, Robotics, Algorithms for Data Science.

B.Tech in Computer Science and Engineering, PES University, Bengaluru, India

## PROJECTS

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- **Human Following Robot** Engineered a human-following system for a holonomic robot using an RGB-D camera, YOLO-v7, SuperPoint, and a PID controller in ROS and Gazebo.
- **Quote Classification and Interpretation** Fine-tuned Transformer models, including BERT, GPT-2, and T5, for multi-label quote classification into subjective categories like "love" and "hope". Conducted experiments with T5 and Gemma models to analyze model sensitivity to nuanced meanings within these emotionally driven categories
- **Optimizing Machine Learning Models for Predictive Analysis** Built custom machine learning models—Neural Networks, Random Forests, and K-Nearest Neighbors—for predictive analysis on Loan and Parkinson's datasets, applying hyper-parameter tuning to optimize performance and visualizing results with F1 score graphs.