LAVANIKA SRINIVASARAGHAVAN

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EDUCATION

UNIVERSITY OF MASSACHUSETTS AMHERST — Amherst, MA
Master of Science in Computer Science — Expected May 2026
Relevant Coursework: Advanced Machine Learning, Methods of Applied Statistics, Distributed and Operating Systems, Information Retrieval, Big Data, Advanced Natural Language Processing, Database Management/Analytics, Software Engineering, Reinforcement Learning

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE PILANI — Hyderabad, India
Integrated M.Sc. Mathematics and B.E. Electronics & Communication Engineering — August 2018 - July 2023
Cumulative GPA: 8.66/10.0
Relevant Coursework: Object-Oriented Programming, Data Structures and Algorithms, ML, Artificial Intelligence, Nonlinear Optimization

TECHNICAL SKILLS

Languages: C, C++, Python, Java, HTML5, CSS3, JavaScript, R, SQL, MATLAB, PHP
Technologies/Frameworks: Linux, Git, React.js, TypeScript, Node.js, Express.js, Socket.IO, Docker, Kubernetes, Hadoop, Spark, AWS EC2, Spring Boot, Django, PostgreSQL, Heroku, NumPy, Pandas, PyTorch, SciPy, TensorFlow, Keras, NLTK, Scikit-learn

WORK EXPERIENCE

HPE JUNIPER NETWORKING — Westford, MA
Software Engineering Intern — May 2025 - August 2025
- Developed Wireshark dissectors in C for 30 Juniper-specific PFCP Information Elements (IEs), leveraging the CMake build system to enhance packet-level analysis and debugging for TR-459-compliant BNG CUPS traffic.
- Created an initial macOS-based Wireshark plugin in C and migrated the implementation to a cross-platform built-in dissector, contributing upstream to Wireshark's open-source codebase via GitLab.

CISCO SYSTEMS INDIA PVT. LTD. — Bengaluru, India
Software Engineer 1 — August 2023 - July 2024
- Developed an automation test framework with YANG CRUD tests and executed integration testing with Pytest for IOS XR's Smart Licensing, increasing code coverage by 35%.
- Identified and resolved bugs, wrote unit tests for three feature releases, and addressed over 15 customer queries.
- Boosted developer productivity by 10% using Python, C, XML, and proprietary Cisco frameworks.

CISCO SYSTEMS INDIA PVT. LTD. — Bengaluru, India
Technical Undergraduate Intern — August 2022 - June 2023
- Engineered OpenConfig Yang support and integrated telemetry into IOS XR's "Keychain" component, used by over 80% of web customers, leveraging NETCONF, IOS XR's SysDB, and Yang models.
- Increased development and testing efficiency by 20% using C, Python, and Cisco's YangSuite and YangMapper tools.

UNIVERSITY PROJECTS

DISTRIBUTED STOCK TRADING APPLICATION — April 2025 - May 2025
- Designed and deployed a scalable 3-tier (frontend, order, and catalog) microservices-based stock trading system using Spring Boot and REST APIs on AWS EC2, supporting 15+ concurrent users.
- Optimized backend performance with an LRU cache and server-push invalidation in the frontend, reducing stock query response time by ~35% under load.
- Implemented fault-tolerant leader-follower replication and recovery for the order service using REST-based synchronization, ensuring 100% consistency post-crash with under 3s failover latency.

DISTRIBUTED IMAGE PROCESSING SYSTEM — March 2025 - May 2025
- Built a Dockerized image classification pipeline using Hadoop HDFS to store 25,000 images from the Kaggle Dogs vs. Cats dataset, and Spark for parallel inference across multiple nodes.
- Preprocessed images with OpenCV and applied a custom CNN and fine-tuned ResNet50 in PyTorch, achieving 78.1% and 96.3% accuracy, respectively.
- Obtained 43 images/sec and 1.66x speedup with 2 Spark workers on 512 images; identified memory bottlenecks at 3 worker nodes.

MUSIC NOTE GENERATION — December 2024
- Engineered an LSTM-based probabilistic model in PyTorch to predict next-note parameters (time, duration, value, volume) using Gaussian and categorical distributions.
- Optimized training on 400,000+ variable-length .pt MIDI files by implementing a custom Gaussian NLL loss function.
- Achieved a 15% reduction in validation loss and improved training efficiency by 20% through hyperparameter tuning and early stopping.

PUBLICATION

AUTOMATIC GENERATION OF MATH WORD PROBLEMS FOR ASSESSING LEARNER SKILLS IN ADAPTIVE LEARNING SYSTEMS — February 2022
- Generated algebra word problems to enhance intelligent tutoring in adaptive learning systems, using transformer-based LLMs (GPT-2, TFGPT2LMHead) with Char-LSTM baseline, achieving a 60% BLEU improvement and reducing manual effort by 40%.