Lakshminarayanan Ravi

(857)423-9766 ravi.l@northeastern.edu linkedin.com/in/r-lakshminarayanan github.com/lakshminarayanannn

Education

Northeastern University *Sep 2024 – Expected May 2026*
MS in Software Engineering *Boston, Massachusetts*

- ***Coursework:*** *Object Oriented Design (JAVA), Applied Machine Learning in Financial Market*

PSG College of Technology *Jun 2018 – May 2023*
MS in Theoretical Computer Science (5-year program) *Coimbatore, Tamil Nadu*

- ***Coursework:*** *Linear Algebra, Probability, Statistics, Mathematical Modelling, Game theory, Artificial Intelligence, Mahine Learning, Deep Learning, Natural Language Processing, Design Patterns, Data Structures and Algorithms, Operating Systems, Database*

Technical Skills

- **Languages**: Python, C#, Java, C++, JavaScript, Go
- **Development Frameworks**: .NET, WPF, Django, Spring, React, Angular, NodeJS, FastAPI, gRPC, GraphQL, WebAssembly, REST API, SQL, PostgreSQL, MongoDB, Redis, MVVM, MVC, Microservice, OAuth, Parallel and Distributed Systems, Algorithms
- **Data Science**: Supervised and Unsupervised Learning, Neural Networks, Diffusion Models, Transformers, PyTorch, TensorFlow, LangChain, LangGraph, Vector DB, Retival Augmented Generation, Graph Algorithms, Time Series Analysis
- **Data Engineering**: Kafka, Hadoop, Cassandra, Spark, Zookeeper, ElasticSearch, Airflow
- **Tools**: Git, Docker, Kubernetes, Databricks, AWS

Experience

KLA Corporation — *C#, C++, ASP.NET, gRPC, RAG, LLM, Knowledge Graph* *Jan 2023 – Aug 2024*
Software Engineer *Chennai, Tamil Nadu*

- At KLA's Fast Division, Developed a state visualizer for log traces, automating test case generation and verification with state machines, **reducing debugging time by 60%**. Engineered a high-performance C++/C# WPF library for the CFS application, **resolving 25+ critical bugs** and **enhancing processing speed by 20%**, positively impacting TSMC and Samsung fabrication
- Built an Information Retrieval system using Graphs and RAG, **boosting ticket resolution speed by 50%**, enhancing accuracy with fine-tuned embeddings, streamlining ticketing and issue tracking across teams, earned Special Mention at the KLA 2024 Hackathon
- Modernized configuration system migrating UI from MFC C++ to WPF C# and backend from COM to gRPC, **boosting performance by 20%**. Designed and architected MVVM and Plugin architecture, enhancing scalability and flexibility

PSG College of Technology — *Vehicle Routing, Gated Recurrent Unit, PyTorch, Graph Theory* *Aug 2022 – Dec 2022*
Researcher With DR. G. Poonthalir *Coimbatore, Tamil Nadu*

- Collaborated with Dr. G. Poonthalir to optimize vehicle routes for the Travelling Salesman Problem using Deep GRUs, **reduced average tour length below 4 km**, enhancing efficiency and solving complex logistical constraints

KLA Corporation — *C#, State Machines, Log Verification, Workflow Automation* *Jun 2022 – Jul 2022*
Software Engineering Intern *Chennai, Tamil Nadu*

- Engineered a state machine–based Log Verifier, **cutting analysis time by 90%** from hours to minutes. Facilitated context-based verification for sequential and parallel workflows, **enhancing workflow efficiency by 50%**

Cypher Wallet (YC W22) — *React Native, Cosmos SDK, Web3, Blockchain* *Jan 2022 – May 2022*
Blockchain Developer Intern *Remote*

- Developed a multi-chain decentralized wallet integrating HDWallets, Web3 injection, and offline/online signers, enhancing cross-chain functionality, security, and accessibility, **resulting in a 20% increase in daily active users and higher retention rates**

KLA Corporation — *Linux, Ansible, Python, React, ZeroMQ* *May 2021 – Dec 2021*
Software Engineering Intern *Chennai, Tamil Nadu*

- **Accelerated upgrade processes from a month to one day** by architecting an Infrastructure-as-Code update system using Ansible. Implemented message streaming and developed a comprehensive dashboard, enabling seamless remote Configuration

Projects

Sclable GPT with GPU Optimization — *Python, NumPy, PyTorch, Numba, Cuda* *Jun 2024 - Jun 2024*

- Designed and implemented a GPT-based model with **26M parameters, integrating multi-head self-attention, LayerNorm, 384-dimensional embeddings, 6 layers**, and custom GPU kernels using Numba for attention, optimized with AdamW and dropout regularization for efficient text generation.

Dynamic Time Series Insights Engine — *Python, Apache Airflow, Databricks, S3, Spark* *Jul 2023 - Jul 2023*

- Built scalable data pipeline with Apache Airflow and Databricks to **produce time series for anomaly detection and KPI reporting**. Integrated real-time aggregation from Google BigQuery and AWS S3, enhancing data processing efficiency

Leadership and Achievements

- **President**, CodeChef PSG Chapter - Organized events that **doubled college participation in competitive programming**
- Advanced to the ICPC Asia Amritapuri on-site Regional twice, achieving a **best ranking of 66th in India in 2022**
- Secured **4th place in the 2020 National Programming Contest** conducted by the Computer Society of India
- Contributed as an **open source developer to LlamaIndex**, a renowned data framework for large language models