LAKSHMI NARAYANAN GIRIDHARAN

Chicago, IL | lgiridharan@hawk.iit.edu | (773) 842-4388 | <u>LinkedIn</u> | <u>GitHub</u>

EDUCATION

Master of Science - Electrical and Computer Engineering — Aug 2023 – May 2025
Illinois Institute of Technology, Chicago, IL — GPA:3.4
Bachelor of Engineering - Electrical and Communication Engineering — Aug 2018 – Mar 2022
SRM University, Chennai, India — GPA:3.5

SKILLS

Programming Languages and WebTech: Python, Java, HTML, CSS, Bootstrap, React.js, Flask, FastAPI, Streamlit, REST APIs, Bash scripting, YAML, Turtle Graphics, XML Parsing.
Development Tools & Applications: Postman, Jira, IntelliJ, NetBeans, VSCode, ReportLab, Matplotlib, Alexa ASK SDK, SpeechRecognition, Pyttsx3, dotenv, Numba, Ngrok.
CI/CD & Monitoring: Git, GitHub, GitLab CI/CD, Jenkins, GitHub Actions, AWS CloudWatch, ELK Stack, Grafana, SonarQube, CI/CD Pipelines.
DevOps & Containerization and Database: Docker, Kubernetes (Stateful Sets, Helm, Network Policies, Persistent Volumes), Apache Cassandra, Chaos Mesh, Terraform, Ansible, Kafka, AWS (EC2, S3, Lambda, EBS, VPC, Elastic Beanstalk, Kinesis, DynamoDB), MySQL, PostgreSQL.
Security & Infrastructure: IAM, Firewall Configuration, Secrets Management, TCP/IP, DNS, VPN, DevSecOps practices, Compliance Auditing.

WORK EXPERIENCE

Devops Intern - Schneider Electric Pvt. Ltd., Chennai, India — May 2022 - Mar 2023
- Engineered end-to-end infrastructure automation using **Terraform**, **Ansible**, and **Kubernetes**, enabling scalable cloud environments across **AWS EC2**, **VPC**, and **IAM**.
- Built production-grade CI/CD pipelines with **GitLab** CI/CD, **Jenkins**, and **GitHub Actions**, improving deployment reliability and cycle time.
- Implemented monitoring and alerting pipelines using **AWS CloudWatch**, **ELK Stack**, and **Lambda**, enhancing system observability and incident response. Developed real-time data ingestion pipelines using **Kafka**, **AWS Kinesis**, **DynamoDB**, and **Lambda** to support predictive analytics.
- Enforced **DevSecOps** practices including **IAM** hardening, automated audits, and secrets management to maintain compliance and security posture.

Cloud Computing, Student Intern, Microsoft, SAP, Bengaluru, India — Nov 2021 - June 2022
- Completed a cloud computing training program with Microsoft and SAP, gaining foundational knowledge of cloud technologies.
- Administered Microsoft Azure cloud platform, focusing on deployment and management of cloud applications.
- Worked with SAP cloud infrastructure to understand integration workflows and enterprise-grade deployment environments.
- Introduced to SAP HANA, thereby multiplying understanding of in-memory database management and cloud integration.

PROJECTS

AInterview – AI-Powered Interview Evaluator github.com/ainterview
Java 17 · Spring Boot · Python · FastAPI ·ML Models (Sentence-BERT · DistilBERT · OpenAI Whisper API · Google Cloud Text-to-Speech) · Docker · REST APIs · HTML/CSS/JavaScript
- Designed and developed an AI-powered interview evaluation platform using **Spring Boot** and **FastAPI** to automate candidate assessment through **natural language processing (NLP)** and **speech-to-text conversion**.
- Integrated **Sentence-BERT** for semantic similarity scoring and **DistilBERT** for sentiment classification; implemented custom emotion detection models to enhance behavioral analysis.
- Utilized **OpenAI Whisper API** for cloud-based transcription and **Google Cloud TTS** for generating spoken questions, enabling fully voice-interactive interview flow.
- Deployed system components using **Docker** containers, supporting and consistent environments across local and cloud infrastructures.
- Built a responsive **HTML/CSS frontend** to display real-time feedback, sentiment scores, and enable downloadable **PDF reports** for recruiter review.
- Achieved ~**70% reduction in manual evaluation time** by automating response scoring, emotion detection, and feedback generation.
- Eliminated dependency on local ML lnfrastructure by adopting **cloud-native AI services**, improving response time and system reliability.

AI Mortgage Advisor – Full Stack AI & Cloud Project github.com/ai-mortgage-advisor
React · FastAPI · OpenAI · Scikit-learn · AWS EC2
- An end-to-end AI-driven mortgage advisory platform to assist first-time buyers and homeowners with loan eligibility and refinancing decisions using machine learning and LLMs.
- Formulated two core ML models using **scikit-learn**: A classification model to predict mortgage approval likelihood based on credit score, loan term, loan type. A regression model to estimate refinance savings based on current mortgage terms vs. market rates.
- Integrated OpenAI GPT-4 via **FastAPI** for an **AI chat assistant** ("AJ") that answers complex mortgage questions using real-time context and eligibility data.
- Innovated a conversational chatbot widget with floating triggers and predefined question handling, allowing natural user interaction.
- Generated **downloadable PDF** eligibility reports with charts (via **ReportLab + Matplotlib**), and approval status and reasons for denial.
- Deployed the application on **AWS EC2** with persistent backend storage, enabling anytime/anywhere access and scalable cloud hosting. Animated **React** frontend with multi-step user forms, eligibility visualizations, and chatbot integration.
- Delivered a complete cloud-based, interactive AI solution combining **ML inference, LLM-based Q&A**, and cloud deployment.

Smart Audio Firewall – Real-Time AI Audio Risk Analyzer github.com/smart-audio-firewall
Whisper ASR · Sentence Transformers · NLP · Streamlit · AWS S3 · Python
- Initiated an intelligent audio analysis system that detects and flags contextually sensitive speech (e.g., "salary," "NDA," "mental health") using Whisper for speech-to-text and **SentenceTransformer (MiniLM)** for semantic similarity.
- Designed a modular ML pipeline integrating transcription, **NLP**-based flagging, redaction, and summarization, ensuring high recall and contextual awareness beyond simple keyword matching.
- Incorporated **AWS S3** cloud storage, enabling users to securely store and retrieve transcriptions, flagged summaries, and redacted reports from anywhere, ensuring auditability and compliance traceability.
- Enabled real-time UI/UX using **Streamlit**, supporting live microphone input, **multi-format audio** uploads (.wav/.mp3/.m4a), and automated redacted report downloads.
- Achieved **>90% accuracy** in simulated HR compliance and workplace safety scenarios by combining **ASR**, semantic **NLP**, and explainable alerting in a user-friendly AI interface.

Alexa-Integrated Real-Time Bus Tracker github/Alexa-ventra-bus-tracker
Python · Flask · Alexa Skills Kit (ASK SDK) · CTA Transit API · Ngrok · Visual Studio Code · XML Parsing · dotenv · CI/CD
- Engineered a real-time Alexa skill leveraging **Python, Flask**, and **ASK SDK** and **CTA's public API** allowing commuters to check CTA bus arrivals via natural voice interaction; optimized response generation to under **1.5 seconds** using efficient **XML parsing** and distance time computation.
- Connected and exposed local development endpoints with **Ngrok**, configuring **Visual Studio Code and the Alexa Developer Console** for seamless debugging; accelerated iteration cycles by **40%** through live testing and streamlined webhook setup.
- Crafted modular logic blocks to manage user intent and session state, dynamically retrieving data from the CTA public API and delivering accurate **geospatial insights** tailored to each query; ensured **100% relevance** in spoken output across diverse scenarios.
- Protected sensitive keys using **dotenv** and deployed **CI/CD-compatible** architecture to facilitate future migration to scalable infrastructure; laid foundation for deploying voice-first mobility solutions to an estimated **1,000+ daily transit users**.

SATURDAE – Voice-Controlled Infrastructure Layout Simulator github/SATURDAE
Python · Turtle · Graphics · NumPy · Speech Recognition · Pyttsx3 · Numba
- Built a voice-activated layout automation applying **IaC** concepts using **Python**, facilitating room/furniture provisioning on a virtual grid.
- Modularized system into components (furniture.py, rooms.py) for reusable rendering logic, object placement, and spatial conflict resolution.
- Leveraged **NumPy** arrays to track resource states, detect collisions, and simulate environment solation to containerized deployments.
- Integrated **Speech Recognition** and **Pyttsx3** for hands-free orchestration, reflecting principles of automation and operator-less environments.
- **Business Outcome**: Streamlined smart space simulation workflows—reducing manual intervention and showcasing DevOps-aligned automation capabilities.

HA Cassandra Cluster with Chaos Mesh
Kubernetes · Apache Cassandra · Chaos Mesh · GitHub Actions · Helm · YAML · CI/CD · Stateful Sets · Persistent Volumes Network Policies.
- Designed a highly available **Apache Cassandra cluster** using **Kubernetes StatefulSets** and Persistent Volumes for reliable data access.
- Simulated real-world failures with Chaos Mesh to ensure system resilience and auto-recovery.
- Accelerated deployments via **GitHub Actions**-powered **CI/CD** pipelines.
- Secured service communications using **Kubernetes Network Policies** to meet compliance standards.
- **Business Outcome**: Revamped system uptime, accelerated release cycles, and ensured secure and fault-tolerant infrastructure for realtime, revenue-critical workloads.

CERTIFICATION

- AWS Certified Cloud Practitioner • Microsoft Azure Fundamentals (AZ-900) • AWS Solutions Architect Associate.