**LAKSHMI NARAYANAN GIRIDHARAN**



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**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**](https://github.com/LakshmiGiridharan/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 infrastructure 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**](https://github.com/LakshmiGiridharan/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**](https://github.com/LakshmiGiridharan/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**](https://github.com/LakshmiGiridharan/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**](https://github.com/LakshmiGiridharan/SATURDAE-main)

**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.