LAKSHMI SWATHI SREEDHAR

AI Engineer | Forward-Deployed Product Builder | Generative AI Strategist

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LinkedIn | GitHub | Blog | Portfolio

PROFILE SUMMARY

Generative AI and LLM-focused Engineer passionate about building and scaling intelligent systems that move seamlessly from research to real-world production. Experienced in LLM orchestration, Text2SQL automation, RAG pipelines, and agentic AI frameworks, I specialize in transforming complex business problems into scalable, user-centric solutions that deliver measurable impact. With a forward-deployed and customer-focused mindset, I've designed and deployed AI products and data intelligence platforms that improved decision accuracy by over 35% and empowered 10,000+ users across industries. Fluent across the AI lifecycle from model design and fine-tuning to deployment, monitoring, and user experience, I combine deep technical execution with strategic product thinking to bridge data, engineering, and user needs. Proficient in LangChain, LangGraph, DSPy, Azure, GCP, Python, and SQL, I bring a builder's mindset, cross-functional collaboration, and delivery discipline to create production-grade AI systems that scale with purpose, reliability, and impact.

SKILLS

- **Programming & Scripting:** Python, SQL (PostgreSQL, Oracle, MySQL, Databricks), PySpark, R, Scala, Bash
- **Machine Learning & AI Systems:** Scikit-learn, XGBoost, LightGBM, Recommender Systems, Reinforcement Learning, Bayesian Modeling, A/B Testing, Explainable AI (XAI)
- **Deep Learning & LLMs:** Transformers, BERT, CNNs, RNNs, GANs, VAEs, Text2SQL, Multimodal Models, Agentic AI, Prompt Engineering
- **NLP & Generative AI Frameworks:** Hugging Face, LangChain, LangGraph, DSPy, PyDantic, Retrieval-Augmented Generation (RAG) Pipelines
- **Data Engineering & Governance:** ETL, Apache Airflow, Data Quality & Metadata Management, Azure Data Factory, SAP/Oracle ERP Pipelines
- **MLOps & Deployment:** Docker, MLflow, Fast API, Flask, Streamlit, CI/CD, API Integration, Model Monitoring, Experiment Tracking
- **Visualization & UX:** Tableau, Dash, Jupyter, Matplotlib, Pandas, NumPy, User-Centered Dashboard Design
- **Cloud & Platforms:** Google Cloud (Vertex AI, BigQuery), Microsoft Azure (Azure OpenAI, Synapse), AWS SageMaker, SQLite, Ikigai, Google Teachable Machine
- **Development & Collaboration:** Agile/Scrum, Jira, Git/GitHub, Confluence, Test-Driven Development, Cross-Functional Stakeholder Engagement
- **Expanding Tech Stack (Learning):** React.js, Node.js, Next.js exploring full-stack integration for AI-driven applications

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PROFESSIONAL EXPERIENCE

- **CHAINSYS CORPORATION**   09/2023 – 05/2025   Grand Ledge, MI

  Software Engineer- AI/ML and Product Systems (Forward Deployed)

  - Led design and deployment of customer-facing Generative AI systems within ChainSys' s Smart Data Platform™, collaborating directly with enterprise clients across healthcare, manufacturing, and supply chain domains to define, prototype, and productionize AI solutions.
  - Architected and owned an enterprise-scale Text2SQL and Retrieval-Augmented Generation (RAG) platform leveraging LangChain, FAISS, and DSPy to enable natural language database querying, schema understanding, and query validation improving decision accuracy by 35% and reducing manual query turnaround by 80%.
  - Delivered agentic AI and conversational automation capabilities using LangGraph and transformer-based orchestration frameworks to support multi-agent reasoning, dynamic knowledge retrieval, and adaptive decision workflows.
  - Built multimodal and LLM-integrated data intelligence tools, including GPT-based context summarizers, BERT classifiers, and hybrid retrieval engines that automated entity resolution and data enrichment across global datasets.
  - Developed a scalable AI Data Quality and Governance engine combining BERT embeddings, metadata rules, and Azure ML pipelines to detect and merge duplicate records, enhancing data reliability by 40% and saving hundreds of analyst hours.
  - Integrated Generative AI modules into enterprise ETL and integration workflows, automating mapping, validation, and anomaly detection across Oracle and Databricks pipelines using FastAPI, Python, and Airflow.
  - Optimized MLOps and deployment processes with MLflow, Docker, and CI/CD pipelines, ensuring versioned experimentation, automated retraining, and consistent deployment across Azure and on-prem environments.
  - Partnered cross-functionally with product, engineering, and data teams to align Generative AI feature roadmaps with customer requirements, driving measurable business outcomes and adoption across 10K+ enterprise users.
  - Acted as a forward-deployed AI engineer and technical liaison, delivering client demos, co-developing proof-of-concepts, and providing field-level feedback to improve model interpretability, scalability, and UX integration.
  - Mentored a team of junior engineers in LLM pipeline design, retrieval optimization, and evaluation best practices fostering a culture of applied AI experimentation and delivery excellence.

- **PARAILLEL INC**   03/2023 – 08/2023   Detroit, MI

  Machine Learning Developer Intern

  - Designed and implemented an AI-driven Recommendation Engine that combined collaborative filtering with Generative AI-based data augmentation (GANs) to improve personalization and cold-start performance across multi-domain user datasets.
  - Integrated transformer and BERT embeddings to enrich semantic context for content-based ranking and similarity scoring, increasing recommendation precision and diversity by 25% while reducing sparse-data failures.
  - Experimented with multimodal input pipelines blending textual, behavioral, and categorical features to create adaptive recommendation flows for e-commerce and media use cases.
  - Developed explainability and evaluation dashboards using Streamlit and Plotly to visualize latent features, model reasoning, and user-level performance metrics enhancing transparency for product stakeholders.
  - Optimized model retraining and deployment cycles with MLflow, Docker, and TensorFlow Recommenders, enabling reproducible experiments and CI/CD integration.
  - Collaborated with product and engineering teams to translate personalization goals into measurable AI outcomes, ensuring feature alignment with user engagement KPIs and platform scalability targets.
  - Contributed to internal research on generative personalization, exploring hybrid architectures that fuse LLMs, embeddings, and retrieval components for context-aware recommendations and conversational discovery experiences.

- **APTECH INC**   12/2020 – 04/2021   BANGALORE, INDIA

  AI/ML Engineer Trainee

  - Completed 400+ hours of intensive training in AI/ML fundamentals, software development, and product engineering concepts.
  - Constructed machine learning pipelines for classification, clustering, regression, and forecasting using Scikit-learn.
  - Developed RESTful APIs and interactive GUIs with Flask and PyQt, integrating ML models into user-facing applications.
  - Applied statistical methods, linear algebra, and EDA techniques to analyse and optimize predictive models.
  - Practiced agile workflows, version control with Git, and real-time debugging in a simulated production environment.

EDUCATION

MIT x PRO – MASSACHUSETTS INSTITUTE OF TECHNOLOGY   02/2025 – 06/2025   REMOTE

No-Code AI and Machine Learning: Building Data Science Solutions

UNIVERSITY OF MICHIGAN DEARBORN   **09/2021-04/ 2023**   Dearborn, MI
Masters in Artificial Intelligence; Minor in Machine Learning
- Non-Resident Graduate Scholarship Recipient

DAYANANDA SAGAR COLLEGE OF ENGINEERING   **08/2016 – 08/ 2020**   Bangalore, India
Bachelors in Aeronautical Engineering

PROJECTS / OPEN-SOURCE

- **AI-Powered Text2SQL & Agentic RAG System** – Python, GPT-4, LangChain, LangGraph, FAISS, DSPy, PyDantic, Streamlit, PostgreSQL, Oracle, Databricks
- **Clinical RAG Data Extraction Pipeline** – Python, Hugging Face, FAISS, Azure OpenAI, Pandas
- **Autonomous-Driving TurtleBot** – MATLAB, ROS, Lidar, Image Processing
- **AI-Powered UNSPSC Category Generator** – Python, GPT-3.5 API, Pandas, Excel
- **Semantic Segmentation for Autonomous Driving** – Python, PyTorch, TensorFlow, OpenCV, ROS

☞ *Full project details, write-ups, and code available at: [My Projects](#)*

CERTIFICATIONS

o   No Code AI and Machine Learning: Building Data Science Solutions by MIT professional Education –MIT

☞ *More Skills and Certifications available at: Certifications*

PUBLICATIONS AND PRESENTATION

- ***Advancing Precision Medicine through Multimodal AI: Innovative Approaches to Diagnostics and Treatment*** – Proposes a multimodal AI framework combining medical imaging, clinical text, and wearable data to improve diagnostics and personalized treatments while ensuring data privacy with federated learning.
- ***Speak the Language of AI: Mastering Prompt Engineering for LLMs –*** Explores advanced prompt engineering techniques for LLMs, introducing automated tuning frameworks to improve performance across business, education, and healthcare.