

# Manideep Sriperambudhuru

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## APPLIED AI / ML ENGINEER

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Applied ML / AI Engineer with nearly three years of experience building ML-driven and GenAI systems, including RAG pipelines, agentic chatbots, and personalization workflows. Strong data foundations with hands-on ownership of internal POCs, model evaluation, and iterative experimentation.

## CORE SKILLS

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**Machine Learning:** Regression, clustering, scikit-learn, feature engineering, experimentation and evaluation

**GenAI / LLMs:** RAG, LangChain, LangGraph, LangSmith, vector similarity search, relevance and faithfulness evaluation (RAGAS-style), BLEU, prompt optimization, LLM latency and cost optimization

**Engineering & Data:** Python, SQL, Medallion Architecture, Azure (ADF, Databricks), Docker

## EXPERIENCE

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### Cognitive Technologies

Hyderabad, India

*Applied ML / AI Engineer*

Apr 2023 - Dec 2025

- Built a hyper-personalized AI tutoring system using LLMs and RAG pipelines to generate adaptive student performance reports used internally by educators.
- Reworked report generation using concurrent, section-wise LLM execution, reducing end-to-end latency from **4-5 minutes to 35-40 seconds**.
- Used token reduction and prompt optimization techniques to balance response quality with cost and latency constraints.
- Designed persona and mood tracking to dynamically adapt tutoring responses during student interactions.
- Built an agentic chatbot using LangGraph to support stateful, multi-step conversational flows.
- Introduced rule-based content moderation and acceptance layers to prevent misuse and avoid unnecessary LLM calls.
- Integrated ML and GenAI components with existing backend services via REST APIs.
- Applied ML evaluation practices including cross-validation, metric selection, and model tradeoff analysis to guide algorithm choices.

## PROJECTS

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### Mental Health Relapse Prediction (Internal POC)

- Built an ML pipeline using PHQ-9, DSM-5 questionnaires, patient journals, and clinician notes to estimate relapse risk.
- Extracted features using sentiment analysis, frequency analysis, and contextual signals from text data.
- Modeled relapse risk as a continuous score and evaluated multiple approaches using cross-validated error metrics.
- Selected LSTM-based models where temporal patterns improved predictive performance while maintaining interpretability constraints.
- Added a RAG-based intervention layer to surface relevant clinical guidance.
- Deployed a Flask + React application using Docker with real-time database synchronization.

### Diabetes Risk Prediction System (Internal POC)

- Developed a questionnaire-driven chatbot to collect KPIs and predict diabetes risk using ML models.
- Implemented scheduled model retraining with checkpointing and best-model selection for inference.
- Built a containerized two-tier Flask architecture with isolated database services.
- Integrated a RAG-based intervention layer to provide contextual health recommendations.

### LLM-Based Resume Screening System (POC)

- Built a resume screening system using vector databases and RAG pipelines to rank candidates by relevance.
- Designed similarity-based scoring to automate shortlisting and reduce manual screening effort.

## EDUCATION

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**CMR Institute of Technology**, Hyderabad

B.Tech in Mechanical Engineering

GPA: 8.46/10

2019 – 2023

## CERTIFICATIONS & RECOGNITION

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- Databricks Generative AI Fundamentals • Star of the Quarter, Cognitive Technologies