Tharunkumar S

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Education

Amrita Vishwa Vidyapeetham   September 2023 - Present
Computer Science Engineering - Artificial Intelligence   Coimbatore, India
CGPA: 8.72/10

Projects

Devlabs | Next.js, Spring Boot (Kotlin), PostgreSQL, MinIO, Keycloak, PM2, nginx | Github Org Link
- Developed a full-stack project management system designed for academic institutions to simplify project tracking, student management, and team coordination and evaluations.
- Built using *Next.js* for the frontend and *Spring Boot (Kotlin)* for the backend, designed to be secure and modular, with *PostgreSQL* handling structured data and *MinIO* for file storage.
- Integrated *Keycloak* as a dedicated authentication server, managing secure login, user roles, and access control across all user types.
- Crafted tools for four distinct user roles—administrators, managers, staff, and students, each with tailored access to features and data visibility.
- Deployed the application on college servers using *PM2* and *nginx* reverse proxy, currently supporting 1000+ active student users.

PediPal | React Native, FastAPI, MongoDB, Neo4j, Gemini | Github Link
- Collaborated with a 4-member team to build a mobile app for mothers and pregnant women to access personalized health guidance, food analysis, and dietary planning, using *FastAPI* and *MongoDB* for the backend and data management.
- Designed a taste preference engine using *Neo4j* and weighted feedback scoring to generate weekly meal plans.
- Implemented a month-specific *RAG* based chatbot, where separate retrieval bases were created for each stage of pregnancy and postnatal care to improve the relevance and accuracy of responses.
- Added an image-based food detection feature using the *Gemini API* to identify food items and provide nutritional insights.

SkillSpark | React Native, Express.js, Gemini, YouTube API
Github: Frontend | Backend
- Developed SkillSpark, a mobile app that generates personalized learning roadmaps and curated YouTube playlists based on selected skills or topics.
- Built an *Express.js* backend that uses *Gemini* to generate optimized search queries and fetches relevant videos through the *YouTube API*.
- Used *AsyncStorage* to persist user data locally, enabling users to save and manage their learning progress across sessions.

Technical Skills

Areas of Interest: Full Stack Development, Machine Learning & AI, System Design
Languages and Frameworks: C, C++, Python, Java, Kotlin, TensorFlow, LangGraph, MySQL, SQLite, PostgreSQL, MongoDB, JS, TypeScript, HTML5, CSS3, React.js, Node.js, React Native, TailwindCSS, Express JS, Next.js, Spring Boot
Tools and Technologies: Git, Linux, Google Cloud, AdobeXD, Adobe Premiere Pro, Adobe Photoshop, Visual Studio

Publications

"LSTM-Driven State of Charge Estimation for Battery Management" | Publication   May 2025
2024 IEEE 11th Power India International Conference (PIICON-2024)

Extra-curricular

- **Project Shortlisted** for the **2024 IEEE 11th Power India International Conference** | View Certificate
- **App Developer** | IETE Club, Amrita Coimbatore
- *Intro to ML and Deep Learning* | IIT Madras | View Certificate
- *Large Language Models* | IIT Madras | View Certificate
- *Fullstack Development* | IIT Madras | View Certificate
- *Information Architecture* | Udemy | View Certificate