Arjun Rao K

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Professional Summary

Full-Stack Developer skilled in **React**, **Next.js**, **Node.js**, and **PostgreSQL**, with experience building scalable web apps and RESTful APIs. Proficient in **Tailwind CSS**, and machine learning frameworks like **TensorFlow** and **Keras**. Currently preparing for **JLPT N4** and focused on opportunities in the Japanese IT industry.

Skills

Languages: JavaScript, TypeScript, Python, Java, SQL
Frontend: React.js, Next.js, Vite, Tailwind CSS, Bootstrap, Three.js, ShadCN UI
Backend: Node.js, Express.js, RESTful APIs, Appwrite, PostgreSQL
Machine Learning & AI: TensorFlow, Keras, LSTM, MediaPipe Holistic
Architecture & Design: MVC Architecture, Component-Based Development, Responsive Design
DevOps & Cloud: AWS (EC2, S3 – Basics), Appwrite (Cloud Backend as a Service)
Tools & Platforms: Git, GitHub, VS Code, Ryu SDN Controller
Operating Systems: Ubuntu, Windows, Unix-based systems

Projects

Kanji Quiz & Revision Web App
React, Tailwind CSS, Node.js, Express, PostgreSQL

- Designed for JLPT learners to actively revise and retain Kanji through personalized quizzes.
- Implements a dynamic quiz engine that fetches Kanji questions from a PostgreSQL database via RESTful APIs.
- Tracks user progress, scores, and login sessions with secure backend logic using Express and Node.js.
- Solves the lack of interactive, trackable Kanji practice tools tailored to JLPT levels.

Hospital Appointment Booking System
Next.js, Tailwind CSS, Appwrite (Auth + DB)

- Streamlines patient-doctor appointment management with real-time role-based booking and scheduling.
- Solves inefficiencies in traditional appointment systems by providing a secure, accessible digital platform.
- Uses Appwrite's authentication and database modules for session handling and role-based access control.
- Ensures a mobile-first responsive interface and secure confirmation workflows.

Sign Language Recognition System
TensorFlow, Keras, MediaPipe Holistic, Python

- Enables real-time recognition of hand gestures to support communication for the hearing-impaired.
- Detects and processes body, hand, and facial landmarks using MediaPipe Holistic for input vector generation.
- Trains a deep learning model (TensorFlow + Keras) to classify sign gestures frame-by-frame in real time.
- Addresses accessibility challenges by offering an affordable and scalable gesture recognition tool.

Network Congestion Prediction for IoT/Autonomous Vehicles
Python, TensorFlow, LSTM

- Predicts network congestion in smart vehicle networks to optimize routing and traffic flow.
- Solves the issue of real-time data delays by forecasting metrics like latency and bandwidth every 5 seconds.
- LSTM model trained on time-series data sends live predictions to the Ryu SDN controller for traffic rerouting.
- Enhances network efficiency and safety in autonomous transportation and IoT-based systems.

Education

Dayananda Sagar College of Engineering Dec 2022 - present
B.E. in Electronics and Communication Engineering ***CGPA:7.8***

Relevant Coursework: Object Oriented Programming, Data Structures and Algorithms, Operating Systems, Computer Networks, Analog and Digital Electronics , Hardware Description Languages (HDL) , Hardware Coding, Machine Learning.

Certification and Participations

- Meta Frontend Developer Certification 9 series Course – Coursera (Ongoing)
- HackerRank – Data Structures & Algorithms (Intermediate)
- Zenken Japanese Training Program – Ongoing
  Participating in career-focused training to become a bilingual tech professional for the Japanese job market.