

DARSHAN C S

Full Stack Developer & AI Engineer | B.Tech Artificial Intelligence & Data Science
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PROFESSIONAL SUMMARY

Pre-final-year B.Tech Artificial Intelligence & Data Science student (CGPA 8.6/10) and Full Stack Developer & AI Engineer who ships end-to-end products React/TypeScript front ends, Django REST and WebSocket backends, PostgreSQL/Supabase data layers and ML/LLM integrations across healthcare, emergency response, network automation and ed-tech. Co-author of a digital-forensics research paper under review at AIFB 2026 (IIT Dharwad). Winner of the Smart Ability Hackathon 2026, two-time Smart India Hackathon internal-round winner, CIH'26 finalist and Adobe University Hackathon 2026 round-clearer among 3 lakh+ participants. International research exposure at **FH Aachen University of Applied Sciences, Germany**. Proven leader and communicator: workshop organiser and sole speaker, invited guest speaker, and host of a student-led podcast with academic and industry leaders. Managed three internships concurrently, including an on-site programme in Germany, without compromising academic performance.

EDUCATION

Rajalakshmi Engineering College (Autonomous), Anna University - Chennai 2024 – 2028
B.Tech in Artificial Intelligence and Data Science | CGPA 8.6 / 10 | Pre-final year

MCC Campus School - Chennai 2024
Class XII — 93.0% (**School Topper**) | Class X — 96.6% (**School Topper**)

TECHNICAL SKILLS

Languages: Python, C, C++, Java, JavaScript, TypeScript, SQL

Frontend: React, HTML5, CSS3, Bootstrap

Backend & APIs: Django, Django REST Framework, REST API design, JWT authentication, Django Channels (WebSockets), Meta WhatsApp Cloud API

Databases: PostgreSQL, PostGIS, MySQL, MongoDB, SQLite, Supabase (Postgres, Storage)

AI / ML: Machine Learning, NLP, LLM Integration (Groq, OpenAI-compatible APIs), Prompt Engineering, GenAI, NumPy, pandas, Neural Networks, Reinforcement Learning

DevOps, Testing & Tools: Docker, Git, GitHub, Render, Vercel, Cloudflare Workers, VS Code Extension API

PROFESSIONAL EXPERIENCE

NIEPMD, Chennai | Full Stack Developer & AI Engineer 2026 – Present

- Developing EchoSense AI an end-to-end tinnitus assessment, sound-therapy and doctor-consultation platform (Winner, Smart Ability Hackathon 2026) now under development & deployment for NIEPMD (National Institute for Empowerment of Persons with Multiple Disabilities).
- Built the React + TypeScript front end (Vite, Zustand, React Router) with a Three.js interactive 3D ear viewer, a clinical-convention audiogram, Web Audio API sound therapy and i18next internationalisation.
- Built the Django REST Framework backend (JWT auth, HL7 FHIR R4 interoperability) and a scikit-learn/SciPy prediction engine across seven modules: assessment, prediction, sound therapy, AI companion, doctor consultation, 3D ear viewer and clinician console.
- Playwright end-to-end tests; production deployment on Render (Gunicorn + WhiteNoise, PostgreSQL-ready via psycopg).

Kuttykoncepts (via Rajalakshmi Engineering College) | Generative AI & Prompt Engineering Intern Jun 2026 – Present

- Producing AI-generated study materials end-to-end turning course concepts into scripts, AI avatars and fully AI-generated instructional videos using prompt engineering and generative-AI tooling.
- Designing and iterating prompts so generated content stays accurate, curriculum-aligned and consistent across subjects.

MASCOR Institute, FH Aachen University of Applied Sciences, Germany | CyberSol International Summer Intern Jun 2026

- 4-week immersion + internship on Deep Reinforcement Learning, AI & Neural Networks which was a 2 weeks online, 2 weeks on-site in Aachen, Stuttgart and Frankfurt — graded 4.75/5 (95%) for a 60-hour, 4-credit workload.
- Organised by IndoEuroSync, GCS and ASDC; lectures and hands-on work in Deep RL, Neural Networks, Sim-to-Real and Cognitive Robotics.

Gocourse Pvt Ltd | SEO Intern 2026 – Present

- On-page SEO for the Gocourse books website keyword research, metadata and content optimisation for organic visibility.

- Built the front end of the Gocourse books website a responsive, component-based UI using React, HTML and CSS.

Note: The Kuttikoncepts, FH Aachen (on-site, Germany) and Gocourse roles ran concurrently in June 2026, alongside full-time coursework.

PROJECTS

TwinCode - NAMASTE ↔ ICD-11 Dual-Coding FHIR Microservice

Smart India Hackathon 2025

NestJS · TypeScript · PostgreSQL · TypeORM · React · Next.js · Tailwind CSS · FHIR R4 · OAuth 2.0 / OIDC · Sentence-BERT · spaCy · scikit-learn

- Designed and prototyped (MVP) a FHIR R4 microservice that dual-codes India's NAMASTE traditional-medicine terminologies with WHO ICD-11 (TM2) for interoperable, EHR-standards-compliant EMR records, exposing expand / lookup / translate / validate for auto-suggest, mapping and pre-save checks.
- As software developer and data analyst, built the data and mapping layer — normalising inconsistent NAMASTE CSVs into FHIR CodeSystems, Sentence-BERT / ClinicalBERT semantic mapping, spaCy + scikit-learn autocorrect and a code-explanation engine that justifies each assigned code.
- Secured access with an OAuth 2.0 / OIDC (JWT) ABHA-consent flow, versioning and audit trails; Swagger-documented APIs.

Pramana (IP-Sakthi Sahayak) — AI-Assisted IP & Regulatory Guidance for AYUSH Innovators

Smart India Hackathon 2026

Next.js 15 · React 19 · TypeScript · FastAPI · PostgreSQL (pgvector) · BGE-M3 · BGE-Reranker-v2-m3 · DeBERTa-v3 NLI · LLM-agnostic orchestration · Bhashini · WHO ICD-11 API · HL7 FHIR R4 · EPO OPS

- Built a guided end-to-end workflow (PS SIH26045, MedTech/BioTech/HealthTech) for AYUSH startups, MSMEs and practitioners: product classification → authoritative legal evidence and prior art → compliance (IP, Access & Benefit Sharing, Traditional Knowledge obligations) → protection strategy → IP-to-market roadmap.
- Deterministic, non-LLM product classification for defensible results; hybrid keyword + semantic RAG over official corpora (TKDL, India Code, IP India, NAMASTE, NBA ABS) and a knowledge graph linking IP rules, authorities, regulations and relationships, with a jurisdiction toggle separating Indian and international regimes.
- Verification engine that citation-checks and NLI-validates every AI-generated claim against the retrieved source, confidence scoring with safe abstention, an append-only audit trail and consent ledger, and packaged escalation of complex cases to human IP facilitators; multilingual web/voice access via Bhashini.
- Business model with TAM/SAM/SOM sizing (₹44 Cr / ₹11 Cr / ₹1.1 Cr per year) and tiered institutional, B2B and API/enterprise plans.

SEVPS - Smart Emergency Vehicle Priority System

CIH'26 Finalist

Django · DRF · Django Channels · Redis · PostgreSQL/PostGIS · NetworkX · scikit-learn · YOLOv8 · React · TypeScript · Docker · GitHub Actions

- Built a real-time emergency-response platform that gives ambulances traffic-signal priority, computes the fastest route with NetworkX routing over PostgreSQL/PostGIS spatial data and tracks live hospital readiness and equipment availability.
- Role-based dashboards for admin, driver, paramedic and hospital users with live updates over WebSockets (Django Channels + Daphne, Redis channel layer), Leaflet maps, Recharts analytics and Web Push / FCM notifications.
- scikit-learn estimators with SHAP explainability and statistical fallbacks, optional YOLOv8/OpenCV traffic analysis, pytest / Vitest / Playwright tests, Docker Compose deployment and GitHub Actions CI across ten Django domain apps.

SHN - Self-Healing Network

React · Vite · Tailwind CSS · React Flow · Django · DRF · Django Channels · Celery · Redis · PostgreSQL · NetworkX · Docker Compose

- Built an observe → detect → diagnose → heal → summarise loop for network failures: Celery Beat drives a 2 s simulation tick, NetworkX computes shortest-path rerouting and live telemetry streams to all clients over WebSockets.
- React front end with an interactive network-topology graph and minimap (React Flow), a fault-injection dashboard and an operator portal, gated by DRF token authentication and staff roles.
- Pluggable explanation layer — deterministic templates by default, any OpenAI-compatible LLM API when configured (auto-fallback); PostgreSQL for topology, telemetry and incident data.

PUC - Programming Using C Learning Platform

Web · Windows .exe · Android .apk · VS Code Extension

JavaScript · HTML/CSS · PWA · Cloudflare Workers · Supabase (Edge Functions, Postgres) · TypeScript · Electron · VS Code Extension API

- Shipped a C-programming platform for college students microlearning content, tests and progress tracking as a PWA, a Windows installer (Electron) and an Android TWA APK, plus a TypeScript VS Code extension for in-editor practice.
- Hand-rolled a framework-free single-page app (vanilla-JS state, rendering and routing; custom neumorphic design system with light/dark theming; Web Animations API) hosted on Cloudflare Workers.
- Supabase backend — a Deno/TypeScript Edge Function action-router, Postgres with versioned SQL migrations and custom session-based auth for students and staff load-tested with k6 and verified end-to-end with Playwright.

Academic WDB - WhatsApp-Based Academic Resource Bot

Django · DRF · SimpleJWT · React · TypeScript · Supabase Postgres & Storage · Meta WhatsApp Cloud API · Groq LLM · Docker · Render · pytest

- Built a WhatsApp bot on the Meta WhatsApp Cloud API: students message a number and instantly receive notes, videos and reference links for any subject, semester and department.

- Regex-first intent matching with a Groq LLM (llama-3.1-8b) fallback; DRF backend with SimpleJWT auth, Supabase Postgres and S3-compatible Supabase Storage; React + TypeScript admin front end; multi-stage Docker build deployed on Render with a pytest suite.

PsychologyAI - AI/ML Mental-Health Companion

Paper in preparation

Python · Django · scikit-learn · pandas · NumPy · Groq LLM API · Bootstrap 5 · SQLite · Gunicorn · WhiteNoise · Render · Vercel

- Mental-health companion offering PHQ-9 and BDI questionnaires, rehabilitation guidance, doctor consultation and an LLM-powered conversational companion (Groq API); deployed on Render and Vercel.
- Trained a scikit-learn text classifier on PHQ-9 response data for sentiment / depression-severity analysis, served in Django views; being prepared for publication and early-intervention outreach to at-risk users.

PUBLICATIONS & RESEARCH

Ghost Evidence: An Explainable Framework for Digital Evidence Correlation and Event Reconstruction from Missing Primary Evidence

Andryan Durai Jebin, Darshan C S, Akshaya P, Dinesh G — Rajalakshmi Engineering College

- Submitted to the 2nd International Conference on AI for Forensics and Biometrics (AIFB 2026), IIT Dharwad; under review (decision October 2026).
- Proposes a hybrid framework forensic rule layer, temporal-reasoning layer, interpretable ML correlation layer and Bayesian-style evidence aggregation that reconstructs a probable digital event and its time interval from surviving secondary traces when the primary artifact has been deleted or overwritten.
- Contributes a formal problem definition, an evidence-source taxonomy with reliability weighting, an expected-trace-absence feature, a controlled evidence-removal evaluation methodology and a forensic-validity / governance analysis.

Depression-Severity Classification from PHQ-9 Responses (PsychologyAI)

In preparation

- Manuscript in preparation on a scikit-learn text classifier for depression-severity analysis, targeted at early-intervention outreach.

ACHIEVEMENTS & AWARDS

- **Winner - Smart Ability Hackathon 2026**, organised by Rajalakshmi Engineering College with NIEPMD, for EchoSense AI now under deployment at NIEPMD by Govt. of India.
- **Winner – Kuttykoncepts Flagship Hackathon 2026**, organised by Rajalakshmi Engineering College, for Generative AI and AI video generation.
- **2x Winner - Smart India Hackathon (SIH) Internal Round**, 24-hour hackathon by Govt. of India.
- **AI NEXUS 2026** - presented internship work at the AI Innovators Expo of REC's AI Tech Summit to Dr. Kumar R, Hon'ble Minister for Artificial Intelligence, IT & Digital Services, Government of Tamil Nadu.
- **School Topper - Class XII (93.0%) and Class X (96.6%)**, MCC Campus School, Chennai.
- **Graded 4.75/5 (95%)** in the CyberSol International Summer Internship, FH Aachen University of Applied Sciences, Germany.

HACKATHONS

- **Smart India Hackathon 2025 – Winner** - Built TwinCode, a NAMASTE ↔ ICD-11 dual-coding FHIR microservice; internal-round winner.
- **Smart Ability Hackathon 2026 - Winner** - With EchoSense AI (REC x NIEPMD).
- **Kuttykoncepts Hackathon 2026 – Winner** - Organised by Rajalakshmi Engineering College, for Generative AI and AI video generation.
- **CIH'26, Rathinam Techzone – Finalist** - cleared every round to reach the finals of the 24-hour hackathon, where SEVPS (Smart Emergency Vehicle Priority System) was built.
- **Adobe University Hackathon 2026** — Cleared two of three rounds among 3,00,000+ participants nationwide.
- **Smart India Hackathon 2026** — Built Pramana (IP-Sakthi Sahayak), an AI-assisted IP, compliance and commercialisation guidance platform for AYUSH innovators with citation-verified RAG and human escalation.

WORKSHOPS & LEADERSHIP

- **Founder & Host - Student-Led Podcast** - Conceived, organised and hosted a two-episode student-led podcast series featuring a professor and the CEO of IndoEuroSync, handling guest outreach, scripting, moderation and production.
- **Lead Organiser & Sole Speaker - TechSavvy 2026, MCC** - Workshop for Class XII students on Python problem-solving and HTML/CSS; planned the curriculum and delivered all sessions.
- **Guest Speaker - Hackathon Awareness Session 2026** - Department of AI & Data Science, Rajalakshmi Engineering College; invited to guide juniors on hackathon strategy, team formation and problem selection.
- **Multitasking under load** - Managed three internships simultaneously (Kuttykoncepts, FH Aachen on-site in Germany, and Gocourse) in June 2026 while maintaining a CGPA of 8.6/10.

GLOBAL EXPOSURE & ACADEMIC PROGRAMS

- **CyberSol International Summer Internship - MASCOR Institute, FH Aachen University of Applied Sciences, Germany (Jun 2026)** - 4-week programme on Deep Reinforcement Learning, Neural Networks, Sim-to-Real and Cognitive Robotics; 2 weeks on-site across Aachen, Stuttgart and Frankfurt; organised by IndoEuroSync, GCS and ASDC; 60-hour, 4-credit workload graded 4.75/5.
- **Industry exposure in Germany** - site visit to the Mercedes-Benz plant, Sindelfingen, and the Porsche Museum, Stuttgart.
- **Continuous learning** - completed Livewire's Master Certificate in Software Development (C, C++, Python, Java) in 2025 and immediately progressed to Web Designing and the Django Framework programmes in 2026, enrolling in each new course on completion of the last.

CERTIFICATIONS

- **Master Certificate in Software Development (C, C++, Python, Java)** - Livewire, 2025
- **Web Designing** - Livewire, 2026
- **Django Framework** - Livewire, 2026
- **CyberSol International Summer Internship** - MASCOR Institute, FH Aachen University of Applied Sciences, Germany, 2026