Dheeraj Gopu

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Experience

Tata Consultancy Services (TCS) Jul. 2024 – Present
Systems Engineer – Backend Developer *Mumbai, India*

- Shipped and maintained **20–30 RESTful APIs** in **Java** and **Node.js** powering the official race-day mobile apps of **major global marathons** (London, New York, Chicago, Amsterdam, Toronto, Lidingöloppet), the largest of which surpassed **2M+ downloads**.
- Sustained **4–5K requests/second** under peak race-day concurrency by redesigning **Amazon RDS** schemas and optimizing high-cost **SQL** queries, improving scalability without added instance cost.
- Removed developer dependency from content publishing by building an internal **CMS portal in React**, enabling client teams to publish and update in-app web pages independently.
- Cut mean time to detect production incidents by provisioning **AWS** infrastructure (**EC2, RDS, S3**) and a **3-tier CloudWatch alarm system** on RDS CPU and request rates, auto-escalating by email on breach.
- Modernized a client-facing application by migrating **100–150 legacy ASP pages** to a current frontend stack, improving maintainability.

Defence Research and Development Laboratory (DRDL) Aug. 2022
Instrumentation Intern *Hyderabad, India*

- Improved measurement reliability across experimental trials by calibrating and validating **pressure, load, flow and temperature instrumentation** used in **rocket propulsion-system testing**.

Publication

Identification of Cardiac Risk from Retinal Fundus Image Using Hybrid CNN-Transformer-Ensemble Model – ICTIS 2025, *Lecture Notes in Networks and Systems*, Vol. 1493, **Springer Nature**, Singapore (2026). DOI: 10.1007/978-981-96-8399-4_14

Projects

Personal Portfolio | dheerajgopu.pages.dev | ***Next.js, TypeScript, Tailwind, Framer Motion*** 2026

- Designed and shipped a production site end to end – **server-rendered Next.js**, custom **SVG** scenery and animation, self-hosted fonts, **no UI component library** – deployed on **Cloudflare Pages**.
- Built the site through **agentic AI-assisted development (Claude Code)**, iterating layout, theming and responsiveness in a spec-driven loop.

ATLAS – Adaptive Thinking & Life Assistance System 2026

- Building an **AI-powered personal executive assistant** that plans a user's day across schedules, tasks, goals, finances, meals and commitments, and re-plans automatically when circumstances change.
- Designed a **manual-first, automation-ready architecture**: user-controlled data as source of truth, with **AI-assisted planning**, integrations and **permission-gated autonomous actions** layered on top.

Celestial Debris – Space Debris Awareness Game | ***JavaScript, HTML/CSS*** 2022

- Built a browser game for the **NASA Space Apps Hackathon** on low-Earth-orbit debris, implementing real-time keyboard controls and **procedural obstacle generation** in vanilla JavaScript.

IoT Home Automation System | ***ESP8266, Arduino, C++*** 2021

- Enabled remote, real-time control of household appliances over Wi-Fi by integrating an **ESP8266 microcontroller** with a companion mobile app.

Education

VNR Vignana Jyothi Institute of Engineering & Technology Aug. 2020 – May 2024
B.Tech, Electronics & Instrumentation Engineering | *Minor: AI/ML* *Hyderabad, India*

- CGPA (Major): 7.7/10
- CGPA (AI/ML Minor): 9.2/10

Technical Skills

Languages: Java, Python, JavaScript, C++, HTML/CSS
Backend: Java, Node.js, REST API design
Databases: PostgreSQL, SQL, Amazon RDS
Cloud & DevOps: AWS (EC2, RDS, S3, CloudWatch), Linux, Git
AI/ML: PyTorch, TensorFlow, CNNs, Transformers
Tools: Postman, JMeter, Claude Code, React