Raghavendra Pedada

Software Engineer | IoT and Edge AI | Full-Stack Developer
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Professional Summary

Final-year B.Tech Computer Science and Engineering student (IoT, Cybersecurity and Blockchain) and Software Intern at IFB Automotive. I work on two tracks: **IoT and embedded systems**, and **AI and software development**. My core strength is **edge AI**: models that run on the device, with no cloud dependency, which keeps data private and systems working offline. I have shipped software across Windows desktop (C#/.NET), Android (Flutter), web (React, FastAPI) and Raspberry Pi, with automated tests and CI/CD, and I hold the IBM Applied DevOps Engineering Professional Certificate.

Education

Alva's Institute of Engineering and Technology (VTU) — Mangaluru, Karnataka
B.Tech in Computer Science and Engineering (IoT, Cybersecurity and Blockchain) — *2023 – 2027 (expected)*
CGPA: 8.03 / 10
Coursework: Data Structures and Algorithms, Object-Oriented Programming, DBMS, Operating Systems, Computer Networks, Cryptography and Network Security, Embedded Systems Design, ARM Architecture, Color Image Processing

Narayana Junior College
Class XII (Intermediate) — *2023*
Score: 78%

Sri Chaithanya Techno School
Class X — *2021*
Score: 99%

Experience

Software Intern — 16 Sep 2026 – Present
IFB Automotive Private Limited — *Bengaluru, Karnataka (On-site)*

- Built **IFB Connect** (GitHub), an on-premises company messaging application that runs entirely on the company LAN: a **WinUI 3** Windows client, an **ASP.NET Core / .NET 8** server and **SignalR** for real-time messaging.
- Implemented Active Directory and local sign-in (Argon2id password hashing, JWT), direct and group chats, department channels, presence, read receipts, file sharing with SHA-256 verification and offline delivery.
- Built an admin console for users, roles and message retention, with CSV audit export; used **Entity Framework Core** migrations for both SQLite and **SQL Server**.
- Wrote unit and acceptance test projects and offline installer scripts for deployment on machines without internet.
- Mapped the plant's end-to-end workflow, following a product from incoming material to shipment across the factory floor, and set up channels for the Production, Quality, Maintenance, HR and IT teams.
- Write a daily internship report on progress for the supervisor.

Cybersecurity Micro-Intern (Virtual) — 2024
Tata Consultancy Services (TCS) — *Remote*

- Completed a virtual program on identity and access management and security best practices for enterprise systems.

Research and Publications

- **Edge-AI Smart Mirror for Mood and Posture Monitoring** – IEEE conference paper (hybrid system plus comparative survey), submitted to **ICIPCN 2027** (IEEE technical co-sponsored, Dindigul, 21–23 Jan 2027). Status: under review.
- **Reproduction of NeuEdge** (arXiv:2602.02439) – reimplementing a spiking neural network (neuromorphic) approach to edge AI in Python and PyTorch, to be published as open source on GitHub. Status: in progress.

Projects

Software and Full-Stack Applications

PaisaPilot – On-Device Expense Tracker | *Dart, Flutter, Android, SQLite (Drift), Gmail API* — GitHub

- Built a UPI-first Android expense tracker for India; transactions never leave the phone.
- Imports bank alerts from SMS (Canara in six formats, ICICI, CGG Bank, FamPay, slice), card alerts from Gmail with read-only OAuth access, and Canara e-passbook PDF statements parsed on the device.

- Stores a payment that arrives as two alerts only once, reconciles statements against stored transactions, and shows monthly spending by category; parsers are covered by automated tests.

HashPilot – Computational Benchmarking Platform | *Python, FastAPI, React, Docker, GitHub Actions*
GitHub

- Built an AI-powered platform that benchmarks Proof-of-Work strategies (sequential, random, multi-threaded and multi-process) on SHA-256 puzzles and recommends the best strategy.
- Designed REST APIs for benchmark execution, analytics and recommendations, and a React dashboard with performance charts; containerized with Docker and automated with a GitHub Actions CI/CD pipeline.

my-cicd-app – CI/CD Pipeline Project | *Python, Flake8, GitHub Actions, Tekton, OpenShift* GitHub

- Built a Python web application with a full pipeline: Flake8 linting and unit tests with coverage in GitHub Actions, then Tekton tasks that clean up, retest and deploy to Red Hat OpenShift (IBM CI/CD final project).

Smart Farming DBMS | *Python, Tkinter, MySQL* GitHub

- Built a desktop database application for farmers, fields, crops and crop growth records, with a Tkinter GUI over a normalized MySQL schema.

To-Do List Application | *Python, Tkinter, JSON* GitHub

- Built a desktop task manager with a Tkinter GUI that saves tasks to a JSON file between sessions.

Artificial Intelligence and Machine Learning

Edge-AI Smart Mirror – Final Year Project | *Python, FastAPI, OpenCV, MediaPipe, TF Lite* GitHub

- Built, in a 4-member team, a local-first smart mirror on a Raspberry Pi 4 (4 GB) with a Pi Camera v2, an IPS display behind a two-way acrylic mirror, and environment and motion sensors.
- Detects mood (7 expression classes mapped to 4 wellness states) and monitors posture (33 body landmarks with MediaPipe BlazePose) fully on the device: **93% mood accuracy**, **89% posture accuracy**, **under 50 ms inference** at about 68% CPU, with no internet required.
- Wrote a FastAPI and WebSocket backend with bounded workers, real and mock hardware adapters, a dependency-free dashboard, a pytest suite, systemd kiosk deployment and documentation on privacy, wiring and validation.

AI Resume Analyzer – ATS Scoring System | *Python, Streamlit, Gemini API, Groq, spaCy, Plotly* GitHub

- Built a web app that scores PDF and DOCX resumes against a job description on 5 weighted dimensions using two LLM engines and spaCy keyword extraction, with interactive charts and JSON report export.

Cosmic RAG System | *Python, LangChain, FAISS, HuggingFace Embeddings, Groq* GitHub

- Built a question-answering app over PDF documents using retrieval-augmented generation: local embeddings, FAISS vector search and an LLM that answers from the retrieved passages.

AI Tool-Calling Assistant | *Python, LangChain, Groq* GitHub

- Built a LangChain agent that decides when to call external tools (calculator, weather API) and streams its responses back to the user.

IoT and Embedded Systems

AQI Monitoring Station – IoT Data Pipeline | *Python, MQTT, HiveMQ Cloud, Node-RED* GitHub

- Built a complete air-quality monitoring station as a simulated IoT system: a Python sensor simulator publishes readings over MQTT to a HiveMQ Cloud broker, and a Node-RED dashboard shows live data.

Smart Home Automation System | *Arduino, ESP32, MQTT*

- Built a system to control home appliances remotely over MQTT using ESP32 and Arduino microcontrollers.

IoT-Based Health Monitoring System | *ESP32, Arduino, sensors, MQTT*

- Built a system that reads health parameters from sensors and publishes them for remote monitoring.

Smart Waste Management System | *Arduino, ESP32, Raspberry Pi, sensors*

- Built a system that monitors waste bin fill levels with sensors and reports them for timely collection.

Web and 3D Portfolio

Portfolio 2.0 – Cinematic 3D Portfolio | *JavaScript, Three.js, WebGL, HTML5, CSS3* GitHub

- Built my personal portfolio (raghavendrapedada.dev): a full-screen 3D scene with camera choreography, selectable 3D character models, interactive project objects and accessible dialogs.
- Optimized for performance and accessibility: Draco-compressed GLB models loaded on demand, lower pixel density on small screens, a reduced-motion option and a text-based Lite version.

3D Developer Portfolio (v1) | *React 18, TypeScript, Three.js, GSAP, Vite, Playwright* GitHub

- Built an interactive 3D portfolio with a pointer-driven character model, glitch-text effects and timeline scroll animations, with end-to-end tests in Playwright.

Hackathons

Cognizant Technoverse Hackathon 2026 2026
Invisible Patient – Ward Communication System *Participant*

- Built a communication system for government hospital wards: QR wristbands link each patient to a record, and a live dashboard shows patient requests to staff in real time.
- Built an automated agent workflow for the system within the hackathon timeline.

Technical Skills

Programming Languages: Python, Java, C++, C, C#, JavaScript, TypeScript, Dart, SQL
Backend and APIs: FastAPI, ASP.NET Core, .NET 8, SignalR, REST APIs, WebSocket, JWT, OAuth 2.0
Frontend and Mobile: React, Vite, HTML5, CSS3, Three.js, GSAP, Framer Motion, Chart.js, Axios, WinUI 3, Flutter, Tkinter, Streamlit
Databases: SQL Server, MySQL, SQLite, Entity Framework Core, SQLAlchemy, Drift
AI and Machine Learning: TensorFlow Lite, PyTorch, OpenCV, MediaPipe, LangChain, RAG, FAISS, HuggingFace, spaCy, Gemini API, Groq, Prompt Engineering, NumPy, pandas, Plotly
IoT and Embedded: Raspberry Pi, ESP32, Arduino, sensors and GPIO, MQTT, HiveMQ, Node-RED
DevOps and Cloud: Git, GitHub, Docker, Kubernetes, Red Hat OpenShift, Tekton, GitHub Actions, CI/CD, Linux, systemd
Testing: pytest, unit and acceptance testing, Playwright, Flake8, Test and Behavior Driven Development
Software Engineering: OOP, Data Structures and Algorithms, SDLC, Agile and Scrum, Microservices, Application Security
Tools: VS Code, Visual Studio, Android Studio, MATLAB, Blender

Certifications

All issued on Coursera; credential IDs link to verification pages.

Professional Certificate

- **IBM Applied DevOps Engineering Professional Certificate** – IBM – May 2026 – SZK24NB0SP1G

IBM DevOps Program Courses

- Introduction to DevOps – IBM – Feb 2026 – ITKXLUGUBZZ4
- Introduction to Agile Development and Scrum – IBM – May 2026 – J6R8G3AN9TSZ
- Introduction to Test and Behavior Driven Development – IBM – May 2026 – OI00TCNHIZFJ
- Introduction to Containers with Docker, Kubernetes and OpenShift – IBM – May 2026 – HPWXQ2F81PP3
- Application Development using Microservices and Serverless – IBM – May 2026 – ZCRT4IB0CM9Y
- Continuous Integration and Continuous Delivery (CI/CD) – IBM – May 2026 – 87VBCTLEKJUN
- Application Security for Developers and DevOps Professionals – IBM – May 2026 – GGE12VSDG14H
- Monitoring and Observability for Development and DevOps – IBM – May 2026 – CHSD6GSDZ6XT
- DevOps Capstone Project – IBM – May 2026 – KGSNT3WE34IR

Other Courses

- Introduction to Computer Vision and Image Processing – IBM – Mar 2026 – W1S541GN065T
- Introduction to Software Engineering – IBM – Sep 2025 – MO1OPCMXR5O1
- Computer Networks and Network Security – IBM – Sep 2025 – 17LGOUK3447I
- The Bits and Bytes of Computer Networking – Google – Sep 2025 – CCSDFSX8YDT1
- Agile Project Management – Google – Sep 2025 – MKZTSNXAAE6J
- AI For Everyone – DeepLearning.AI – Nov 2025 – V1KKFNEOEE7B
- Speak English Professionally: In Person, Online and On the Phone – Georgia Tech – Nov 2025 – 9P02E1UBSC13
- Water: An Essential Resource – Politecnico di Milano – May 2026 – QPNTACJ0FF5I
- TCS Cybersecurity Micro-Internship Certificate – Tata Consultancy Services – 2024

Languages

English (Advanced) | Hindi (Advanced) | Telugu (Advanced)

Areas of Interest

AIoT | Edge Computing and On-Device AI | Computer Vision | Embedded Systems | Neuromorphic Computing | DevOps