

Dheeraj Anna

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EXPERIENCE

Oscode Solution

October, 2024 - Present

Back-end Intern

Bengaluru, Karnataka

- Devised and scaled **REST APIs** to power **AI-driven automation** solutions for the **educational sector**. Features include generation of custom PPTs, quizzes, and model papers using **OpenAI Developer Platform (Assistants API and GPT models)**.
- Built a robust back-end framework using **Flask**, incorporating **Redis-based session management** and **JWT authentication** to enforce **single-session access** across devices, **preventing unauthorized logins** and enhancing overall system reliability.

Microsoft India

May, 2024 - June, 2024

Software Engineering Intern

Noida, U.P.

- Designed a **full-stack solution** in **MS Word Copilot** in the form of suggestion pills to facilitate **self-refinement of responses** while utilizing **agentic workflows, TypeScript, OpenAI's LLMs, Augloop, React.js, and Azure DevOps**.
- Evaluated the results on **Leo Metrics** used across the **Office AI team** to gauge an average **enhancement of ~20%** in the overall quality of responses by using **self-refine** across scenarios like summarization, question-answering, basic chat etc.

Centre for Incubation Innovation Research and Consultancy

June, 2023 - August, 2023

R&D Intern

Bengaluru, Karnataka

- Pioneered a software solution for **vital features' extraction, type classification, and abnormality detection of pulse-rate morphologies** using **OpenCV, Oriented FAST and Rotated BRIEF, Savitzky-Golay filters, and CNNs** to achieve **~91% accuracy**.

PROJECTS & PUBLICATIONS

Lightweight Device Authentication Architecture in MQTT Protocol | IEEE Internet of Things Journal

- Designed a device **registration and authentication scheme** for MQTT protocol on resource-bound nodes using **generation of cryptographic keys, socket programming, and edge computing**. Enabled **CRUD operations** driven by **Cuckoo filters** on the keys and session-tokens using **MariaDB, MySQL** on **Debian GNU/Linux, Raspberry Pi OS**.
- Employed **Verifpal** and **AVISPA** to carry out a successful formal security validation of the scheme against various **network attacks** (relay, impersonation, malicious node etc.) while **reducing communication and computation overhead**.

HR Assistant for Résumé Alignment and Hiring

- Developed an end-to-end solution for aligning résumés with dynamically generated job descriptions. Enabled generation of a **ranked list of desirable candidates** and **interview procedure** for a job title using **Hugging Face, LangChain, and Microsoft Phi-2**.
- Utilized **React.js, Node.js, Express.js** and deployed on **Google Cloud VM instances** with **custom roles for GC storage buckets**.

Document Analyzer and Disseminator | IEEE CSITSS

- Created a full-stack application with **NLP, OpenCV** to achieve **~90%** accuracy in **categorizing** college announcements, **~95%** accuracy in **extracting crucial templates** and a **front-end for summary condensation** and **email notifications** for target groups.

SKILLS

Programming Languages & DevOps: C, C++, Python, TypeScript, JavaScript, C#, Git, GitHub, Azure DevOps

AI&ML and Data Science: OpenCV, NLP, Hugging Face, LangChain, Deep Learning, TensorFlow, scikit-learn, Keras

Web Development: HTML5, CSS, JS, Tailwind CSS, React.js, Node.js, Express.js, REST APIs, MongoDB, Redis, MySQL, MariaDB, Flask

IoT and Networks: Socket programming, Verifpal, Cryptography, Raspberry Pi

EDUCATION

R.V. College of Engineering

December, 2021 - June, 2025

B.E. (Artificial Intelligence & Machine Learning) | **CGPA: 9.48**

Bengaluru, Karnataka

D.A.V. International School

June, 2020 - May, 2021

Class 12th (PCM-CS) | **Percentage: 98%**

Navi Mumbai, Maharashtra

POSITIONS OF RESPONSIBILITY & EXTRACURRICULARS

Licensee | TEDxRVCE: Leading and overseeing **all of the club's teams** (Curation, Marketing, Production, Design, Sponsorship, and Post-Production) to craft the annual **flagship event of TEDxRVCE** with distinguished speakers from diverse domains.

Actor & Technical Head | CARV-Hindi (The Hindi Dramatics Society of RVCE): Bagged the **first and third prize** in the **street-play** competitions of the annual cultural fests of **BITS Goa (Waves 2022)** and **IIT Madras (Saarang 2024)**, respectively.