

SWAYAM KAMBLE

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🌐 [swayam-kamble](https://www.swayam-kamble.com)

📁 [Portfolio](#)

PROFESSIONAL SUMMARY

Passionate AI Engineer with hands-on experience in **multi-agent systems, computer vision, natural language processing, and LLM deployment**. Proven track record of building privacy-preserving AI solutions with local inference capabilities. Skilled in developing intelligent automation systems integrating IoT sensors with deep learning models. National finalist in 5G Innovation Hackathon and 1st place winner at IIT Bombay's eLSI Hackathon among 520+ colleges. Eager to leverage expertise in machine learning, RAG systems, and agentic AI frameworks to drive innovation in real-world applications.

TECHNICAL SKILLS

AI/ML: Machine Learning, Deep Learning, LLMs, LangChain, Computer Vision, NLP, RAG Systems

Programming: Python, C, C++, Arduino, Embedded C

Technologies: IoT, Microcontrollers (ESP32, Arduino), Sensors & Actuators, MQTT, Wi-Fi, Bluetooth

Web Development: HTML, CSS, JavaScript

EXPERIENCE

5G Lab, VNIT Nagpur

2025 – Present

Research Intern

Nagpur, India

- Working on AI-integrated 5G and IoT projects under Dr. Prabhat Sharma, focusing on **intelligent connected systems and advanced wireless communication applications**.

SPCRC, IIIT Hyderabad

July 2024

Summer Research Intern

Hyderabad, India

- Worked under Dr. Sachin Chaudhari on **IoT technologies and signal processing applications with AI integration**.
- Developed ultrasonic-based water level monitoring system with **temperature-compensated sensing algorithm** for accurate liquid level detection.

E-Yantra Lab, St. Vincent Pallotti College

2022 – Present

Workshop Conductor & Mentor

Nagpur, India

- Conducted workshops on IoT, AI, and emerging technologies for junior students, **sharing hands-on knowledge and real-world applications**.
- Mentored peers in **AI integration with embedded systems and IoT device control**, fostering collaboration and technical growth.

PROJECTS

Victoria - Multi-Agent Lab Automation Framework | Python, LangChain, AI, IoT

2025

- Developed **privacy-preserving multi-agent AI system** with three specialized agents (conversational, database, monitoring) executing all computations locally using Llama 3.2 Vision (11B) without cloud dependency.
- Implemented **vision-sensor fusion** integrating ESP32-CAM with environmental sensors for proactive anomaly detection (fire, intrusion, equipment failure) achieving under 5% false positive rate.
- Built **RAG system** with BAAI embeddings and FAISS indexing for contextual question-answering, voice interface with Vosk/Kokoro, and multi-factor biometric authentication with MQTT real-time communication.

AI-Powered Portfolio with Chatbot | HTML, CSS, JavaScript, NLP

2025

- Built responsive portfolio website featuring **AI-powered conversational chatbot** using natural language processing for intelligent information retrieval and dynamic visitor engagement.
- Implemented **context-aware response generation** with semantic search capabilities to answer queries about technical projects, skills, and experience automatically.

EDUCATION

St. Vincent Pallotti College of Engineering and Technology

2022 – Present

Bachelor of Technology (B.Tech) - Industrial Internet of Things (IIoT) — CGPA: 7.71/10 Nagpur, India

St. Paul Junior College

2020 – 2022

Higher Secondary Education (12th Grade) — Percentage: 75%

Nagpur, India

ACHIEVEMENTS

eLSI Hackathon, IIT Bombay

2024

1st Place Winner

National Level

- Led team of 4 to develop innovative **AI and IoT-based lab automation system using computer vision and machine learning**.
- Competed against 520+ colleges nationwide and secured first position.

5G Innovation Hackathon 2025, DoT

2025

National Finalist

National Level

- Selected among top finalists from 150-200 proposals across India for **AI-powered mining monitoring project**.
- Received **INR 1,00,000 seed funding for AI model development** with access to 5G Use Case Labs.

College Startup Expo

2024

Smart Infrastructure Innovation Award

College Level

- Received INR 10,000 cash prize for Smart Street Light Monitoring System project.

CERTIFICATIONS

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| • Machine Learning - Prutor IIT Kanpur | • Python Certification - CodeChef |
| • Web Development - Great Learning | • C++ Programming - DiSHA Computer Institute |
| • Hands-on IoT - NPTEL | • Sensors and Actuators - NPTEL |
| • Microprocessors and Microcontrollers | • Manufacturing Process Technology - NPTEL |
| • Industrial Approach in Electronics | |