

Ashwin R

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EDUCATION

SASTRA DEEMED UNIVERSITY

Thanjavur, TN

Bachelor of Technology

2023 - 2027

Major in Computer Science Engineering; Specialization in IOT and Automation

Cumulative CGPA: 7.7253/10.0

BLOSSOM PUBLIC SCHOOL

Thanjavur, TN

High School Education(CBSE)

2020 - 2022

Class XII Marks: 437/500 (87.2%)

Secondary School Education(CBSE)

2016 - 2020

Class X Marks: 448/500 (89.6%)

TECHNICAL SKILLS

- **Programming Languages:** Proficient in C, C++, Java, and Python; currently learning Rust and R.
- **AI & LLMs:** Meta LLaMA 3, Hugging Face Transformers, Sentence Transformers, OpenRouter API, NLP, RAG, Prompt Engineering, Reinforcement Learning, PyTorch, Scikit-learn
- **Edge, IoT & Cloud:** MQTT, Mosquitto, Docker, Ray, Dask, AWS (Cloud Services), Raspberry Pi (ARM)
- **Data & Information Retrieval:** FAISS, BM25, Semantic Search, Stream Processing (Kafka/RabbitMQ), InfluxDB, Grafana
- **Speech & Multilingual Systems:** SpeechRecognition, gTTS, Multilingual Translation
- **Web & Tools:** Hugo, Gradio, Git, GitHub, Hugging Face Spaces, Streamlit
- **Platforms & Hardware:** Linux, Bash Scripting, Linux System Modification,
- **Other Skills:** LaTeX (document formatting), Technical Documentation, Canva(for Presentations and Design)

PROJECTS

VITAL-Healthcare-Edge-Scheduler

Versatile Intelligent Task Allocation for Latency-sensitive Healthcare

- Simulated IoT healthcare devices on PC sending real-time patient vitals via MQTT to edge nodes.
- Implemented cutting-edge **adaptive scheduling algorithms** with reliability, latency, and QoS guarantees.
- Secured data streams with RSA-based encryption before cloud transmission (AWS integration).

- Built **distributed edge simulation** (SimPy, Ray/Dask, Docker) with monitoring dashboards (Grafana, Streamlit).
- **Tech Stack:** Python, MQTT, Mosquitto, SimPy, Ray, Dask, Docker, AWS, Grafana, Streamlit, PyTorch.
- **Repo-link :** github.com/ashwin-r11/VITAL-Healthcare-Edge-Scheduler

VrittiDisha AI (Hackathon Project)

AI-powered Multilingual Occupational Classification Assistant

- Built a next-gen platform to map natural language job descriptions to NCO-2015 occupation codes for government surveys
- Implemented **multilingual semantic engine** (MuRIL/IndicBERT) with hybrid FAISS + BM25 search for accurate classification
- Developed **cultural context embeddings** for regional terminology and **voice-to-code pipeline** Currently providing support for three Indian languages.
- Added **active learning feedback loop** with confidence scoring, enabling continuous improvement and transparent audit trails
- Integrated security features (on-prem deployment, encryption, full audit logs) for government readiness
- **Tech Stack:** Python, MuRIL, IndicBERT, FAISS, BM25, Hugging Face Transformers, PyTorch, Speech Recognition, Streamlit.
- **Repo-link :** github.com/ashwin-r11/CrossLingual-Neural-Occupation-Classifer-CNOC
- **Proposal :** [proposal pdf](#)

Extracurricular Activities

- Actively participate in AI forums and specialized subreddits dedicated to discussions on Artificial General Intelligence (AGI).
- Engaging with academic research in AI, physics, and mathematics.
- Spending time studying ethics and morality, exploring how AI and emerging entities reshape human philosophy.
- Interested in high-performance computing and the integrated functioning of distributed systems.
- Pursuing literature, with a focus on science fiction and classical works.
- Managing home server systems and prototyping with 3D printing and CAD tools.
- Playing chess, football, and badminton to develop strategy and fitness.
- Other interests: photography.

Languages Known

- **English:** Full professional proficiency
- **Tamil:** Native proficiency