GANGASAGAR HL

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https://github.com/Gangasagarhl/

Education

International Institute of Information Technology Bangalore **July 2024 – Present**
M.Tech in Computer Science *3.58/4*

Sapthagiri College Engineering **August 2017 – July 2021**
Bachelor of Engineering in Computer Science *3.59/4*

Experience

SmartBridge, Remote **March 2021 – April 2021**
Machine Learning Intern

- Built a CNN-based model to classify satellite images (icebergs vs. ships) using Python and Flask.
- Deployed the solution on IBM Cloud Foundry for real-time monitoring and alert generation.

SmartBridge, Remote **August 2020**
IoT Intern

- Built and deployed an end-to-end surveillance system using IBM Watson IoT for real-time monitoring and control.
- Integrated image capture with Cloud Object Storage, Cloudant DB for metadata, and Watson Visual Recognition for classification.
- Orchestrated services using Node-RED and triggered Fast2SMS alerts for unrecognized faces via mobile app.

Projects

Security System — Python, Flask, PyTorch, LangChain, Raspberry Pi 3B+, TensorFlow, FAISS **April 2025**

- Deployed a fine-tuned MobileNetV3-small (TensorFlow Lite) on Raspberry Pi for real-time object detection and alert-triggered video/image streaming to IIITB server.
- Integrated BLIP, T5, and Llama 3.2 on the server to auto-summarize alerts and deliver notifications via Twilio, WhatsApp, and Gmail based on threat levels.
- Built a RAG system with FAISS to store and summarize daily image data; exposed summaries via REST API for admin-level querying.

Transformers Arena — PyTorch, LoRA, Huggingface Hub, Qwen Transformer, Raspberry Pi 3B+ **May 2025**

- **GPT-2 Model:**
  - Implemented a custom GPT-2 architecture using PyTorch, specifically optimized for deployment on low-resource devices such as Raspberry Pi through advanced hyperparameter tuning.
  - Published the model to PyPI as `sagar-neuron-gpt2`, enabling open access for developers to install, train, and perform inference via a guided README: `pip install sagar-neuron-gpt2`.
- **One Word VQA:**
  - Fine-tuned the Qwen vision transformer using LoRA techniques to develop a Visual Question Answering system capable of returning accurate one-word responses, trained on the Amazon Berkeley dataset.

Heart Disease Detection — Airflow, MLFlow, Sklearn, Actions, Docker, AWS(ECR, EC2, S3), Kubernetes **May 2025**

- Implemented an ETL pipeline using Apache Airflow to extract data from GitHub raw sources and store it in MongoDB Atlas.
- Developed a CI/CD workflow where code changes pushed to GitHub automatically trigger Docker builds, upload to AWS ECR, and deploy on EC2 for real-time model training using data from Atlas MongoDB.
- Integrated AWS S3 to store the best-performing models and make them accessible via a public EC2 IP for both inference and online training.
- Tested and implemented Kubernetes on localhost, enabling horizontal scaling for containerized workloads.

TeleManas Project — Flask, ReactJS, LangChain, MySQL, Pandas **January 2025 – Present**

* Contributed to a government mental health initiative by analyzing datasets to identify trends and generate insights for stakeholders.
* Designed and developed an intelligent dashboard that converts natural language queries into data visualizations using LangChain.
* Ongoing development includes expanding visualization capabilities and refining insights based on evolving stakeholder needs.

Publications

Predicting Soil pH using Mobile Captured Picture **July 2021**

· Gangasagar HL, Jovin Dsouza, Bhagyashree B Yargal, Arun Kumar SV, Anuradha Badage. *International Research Journal of Engineering and Technology (IRJET)*, Vol. 08, Issue 07, July 2021.

Technical Skills

Languages: Python, C, C++
Technologies/Frameworks: Tensorflow, Pytorch ,Docker, Git, Github, Github Actions, Flask, MYSQL,SQL , ML Flow, Apache Airflow, Raspberrypi

Relevant Coursework

* Software Systems	* Machine Learning	* ESD	* MOML
* Concrete Mathematics	* Mathematics For ML	* Visual Recognition	* Project Elective

Leadership / Extracurricular

· Volunteered in institute-level activities and events under the Aikyam student body.
· District Level Table Tennis Winner.

Certifications

Complete Generative AI Course With Langchain and Huggingface — Udemy June 2025
Raspberry Pi — Udemy April 2025
LangGraph – Develop LLM-powered AI agents with LangGraph — Udemy Present
Mastering LlamaIndex: Build Smart AI-Powered Data Solutions — Udemy Present