SAYAK GHORAI

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OBJECTIVE

Motivated and detail-oriented Computer Science undergraduate with a specialization in Artificial Intelligence, seeking opportunities to apply and expand my expertise in machine learning, NLP, and system design. With hands-on experience in developing production-grade tools using LLMs, optimizing data pipelines, and deploying AI on edge devices, I aim to contribute to impactful, real-world solutions through collaborative and innovation-driven roles.

EDUCATION

NIIT University, Neemrana ***Aug 2021 - Jul 2025***

- Bachelor of Technology in Computer Science and Engineering
- **Cumulative GPA:** *9.42*
- **Relevant Coursework:** Specialization in Artificial Intelligence

TECHNICAL SKILLS

- **AI/ML Expertise:** Machine Learning, Deep Learning, Artificial Intelligence, NLP, Computer Vision
- **Programming Languages:** Python, JavaScript, Java, C/C++ (Arduino)
- **Frameworks & Libraries:** TensorFlow, Keras, PyTorch, Ultralytics, NLTK, OpenCV, React.js, Node.js, Flask, Git
- **Database:** MongoDB, MySQL
- **Platforms:** Render, Vercel, Netlify, Kaggle, GitHub, Hugging Face, Roboflow, Linux, MacOS, Windows
- **Tools:** Labelbox, Jupyter Notebook, Docker, Jenkins, Kubernetes(basic), Jira, Asana, Trello, Google Analytics

INTERNSHIP EXPERIENCES

GE Appliances, A Haier Company ***Jan 2025 - Current***

Data-Scientist Intern *Bangalore, India*

- Built a document classification system using an NLP + LLM pipeline, improving speed by 10x via parallel processing and saving 2.5 hours per run per user.
- Built a pipeline to structure historical master data, estimate training costs, and fine-tune OpenAI models seamlessly.
- Performed prompt tuning to improve accuracy and efficiency by clearly structuring problem statements and context, generating structured outputs, and eliminating the need for response post-processing.
- Developed a keyword-to-query generator tool integrated with internal data systems.
- Created a document scraping & storage system using JSON fields inside a relational database.
- Engineered a Boolean query parser to interpret user friendly nested queries and convert them to database operations.

Cats In Lab Coats Technologies ***Sep 2022 - Apr 2024***

System Engineering and General Assistance Intern *NIIT University*

- Practiced real-time ML inference on edge devices using single-shot detectors like YOLO and SSD MobileNet.
- Worked on UAV assembly and testing, with hands-on experience in Raspberry Pi 4B, APM 2.8, Pixhawk Cube+, and Ardupilot/QGC tools.
- Experienced in tools like Ardupilot Mission Planner, QGroundControl(QGC), learned about MAVLink protocol.
- Gained hands-on experience in assembling multi-Rotor drones and Fixed Wing Hybrid VTOLs.

Center of Excellence in Education Technology ***Aug - Nov 2023 & Jan - May 2024***

Technology & Media Desk Teaching Assistant *NIIT University*

- Mentored 150+ academic projects, including 40+ industry-linked.
- Developed automations using APIs, and Python resulting into efficient project execution.
- Organized a workshop on using project management tools like Asana, successfully attracting over 250 audience.
- Authored comprehensive documentation for project tools, detailing user instructions, potential issues, and solutions.

PROJECTS & RESEARCH EXPERIENCES

R&D on CNN based Human Face Emotion Recognition

TensorFlow, Pandas, Scikit-learn, CNN

CNN based Classification model to recognise human face emotions

- Developed a face emotion recognition model using CNN with residual and parallel connection blocks, optimizing various techniques and loss functions.
- Achieved 63% accuracy on the FER2013 dataset and 68% accuracy on AffectNet, with a model built from scratch.
- **Google Docs:** *Human Face Emotion Detection using Face Images*

Human Activity Recognition using Wi-Fi Channel State Information

WiFi-CSI, TensorFlow, Keras, CNN, LSTM

A project focuses on recognising human activity using Wi-Fi channel state information

- Designed and fine-tuned the architecture and hyperparameters for human activity recognition using CSI data, leveraging LSTM, CNN and other architectures.
- Improved accuracy to 95% with high precision and recall, while exploring advanced fine-tuning technique
- **GitHub:** *sayakghorai34/HAR-using-CSI.git*
- **Kaggle Notebook:** *sayakghorai34/csi-har-notebook*

Implementation of DCGAN

PyTorch, JAX.Numpy, Matplotlib, Transpose Convolution, DCGAN

Implement from the Paper "Unsupervised Representation Learning with Deep Convolutional Generative Adversarial Networks"

- Implemented the paper's DCGAN architecture using PyTorch, applying it to MNIST and CelebA datasets to learn the framework and GAN concepts.
- **Kaggle 1:** *https://www.kaggle.com/code/sayakghorai34/dcgan-mnist*
- **Kaggle 2:** *https://www.kaggle.com/code/sayakghorai34/dcgan-rgb*

Real Time Lane Detection Using OpenCV-Python

Numpy, MoviePy, OpenCV-Python, Computer Vision

Computer Vision based program to detect lanes in real-time

- Built a real-time lane detection system using Canny Edge Detection and Hough Transform algorithm, achieving near real-time performance on video footage.
- Optimized OpenCV-Python processing to handle a 27-second 720p video (50 FPS) in 35 seconds.
- **GitHub:** *https://github.com/sayakghorai34/Real_Time_Lane_Detection.git*

CERTIFICATES

PCAP: Programming Essentials in Python » *view certificate* ***7Apr, 2022***