SAYAK GHORAI

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EDUCATION

NIIT University, Neemrana

Aug 2021 - Current

Bachelor of Technology in Computer Science and Engineering
Cumulative GPA: *9.43*
Relevant Coursework: Specialization in Artificial Intelligence

TECHNICAL SKILLS

- **Strong Areas:** Machine Learning, Deep Learning, Artificial Intelligence, Digital Image Processing, Computer Vision
- **Programming Languages:** Python, JavaScript, Java, C/C++ (Arduino)
- **Libraries/Frameworks:** TensorFlow, Keras, PyTorch, OpenCV, React.js, Node.js, Git
- **Database:** MongoDB, MySQL
- **Platforms:** Render, Vercel, Netlify, Kaggle, GitHub
- **Tools:** Labelbox, VS Code, Intellij, Google Collab, Docker, Jenkins, Jira, Asana, Trello, Google Analytics

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, 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*

INTERNSHIP EXPERIENCES

Cats In Lab Coats Technologies (Startup)

Sep 2022 - Apr 2024

System Engineering and General Assistance Intern

NIIT University

- Acquired practical experience in transfer learning and working with single-shot detectors like YOLO and SSD MobileNet.
- Experienced with edge devices like Raspberry Pi 4B, APM 2.8, Pixhawk Cube + Flight Controller.
- 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

- Helped to facilitate 150+ academic projects including 40+ industry linked projects
- 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 participants
- Created comprehensive documentation for project tools, detailing user instructions, potential issues, and solutions

CERTIFICATES

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