

KUNAL KUMAR SAHOO

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EDUCATION

B.Tech in Computer Engineering, Pandit Deendayal Energy University
CGPA: 9.89

2021 – Present

SKILLS

Programming Languages	Python, Julia, R, Java, C/C++, Bash, MATLAB (basics)
Databases	MySQL, MariaDB, SQLite3, MongoDB
Libraries/Frameworks	PyBullet, NumPy, Pandas, Matplotlib, OpenCV, PIL, Tensorflow, Keras, PyTorch, NLTK, Transformers, Streamlit, Flask, Librosa
Developer Tools	GNU/Linux, Git, Docker
Microcontrollers/Microprocessors	Raspberry Pi, Arduino, Jetson NANO

EXPERIENCE

Research Intern

Jio, RIL

June 2023 - August 2023

Remote, IN

- Worked on skeleton fitting in 3D Mesh and animating objects using Skinning
- Working on **3D Facial reconstruction** for application in Metaverse
- Primary focus on **Mesh representation of 3D shapes** and its implementation in Python3

Research Intern

Indian Institute of Technology, Kharagpur

May 2023 - June 2023

West Bengal, IN

- Working under Prof. Shyam Das Mandal from Advanced Technology Development Centre
- Working on L1 (native language) identification from L2 (non-native language) speech using **Speech processing** and **Deep learning**, interpreting model working using **SHAP (XAI)**
- Used IISc LEAP's NISP dataset for training, validation and testing

Student Researcher

Pandit Deendayal Energy University

October 2022 - Present

Gujarat, IN

- Working under Dr. Debabrata Swain from Dept. of Computer Science Engineering
- Developing real-time posture monitoring system from edge devices using Computer Vision and Machine learning.
- University-funded and applied for provisional design patent under Indian Patent Office (Appl. No:202321037990)

CERTIFICATIONS

- [Google Cloud Computing Foundations: Data, ML, and AI in Google Cloud](#)
- [Perform Foundational Data, ML, and AI Tasks in Google Cloud](#)
- [Level 3 GenAI: Prompt Engineering](#)
- [Google Cloud Computing Foundations: Cloud Computing Fundamentals](#)
- [Google Cloud Computing Foundations: Infrastructure in Google Cloud](#)
- [Fundamentals of Deep Learning, NVIDIA](#)
- [Industry Approach to IoT with Deep Learning](#)
- [Application of Statistics in Data Analytics](#)

ACHIEVEMENTS

- Filed 1 **Provisional Product Patent** and 1 **Provisional Design Patent** under Indian Patent Office
- Amongst **top 4%** developers world-wide in domains of open-source contributions in Python (Rank 115).
- Within top 10 best project ideas in University-level Smart India Hackathon 2023
- Received funding of **225K INR** for development of a robot prototype under SSIP
- Won **150K INR Robofest 3.0**, organized by GUJCOST, Govt. of Gujarat
- Second runner-up at **EnCode hackathon** at IIT Guwahati sponsored by Bosch
- Grand finalist of **Azadi ka Amrit Mahotsav hackathon**, 2022 organized by SSIP, Govt. of Gujarat

PROJECTS

Medico(Under development) : Developing a simple application that identifies tumor affected areas from Brain-MRI using SegFormer architecture and answers questions based on the segmented results using Content-based Retrieval-Augmented Generation technique.

Nyx(Project grant received) : Developing a self-driving robot using only cameras for environmental sensing and using ROS for software simulations. The road detection algorithm and steering algorithm made us win 3rd prize in EnCode hackathon held at IIT Guwahati, sponsored by Bosch.

Deep Q Learning based Lunar Lander : Used Deep Q learning to play the Atari Lunar Lander game. Used OpenAI's Gymnasium for the environment and Torch to develop the Neural Network.

EDA Playground(Under development) : Leading a team of 5 remote developers from India to develop a web-based solution for complete Exploratory Data Analytics Dashboard for Data Scientists using Flask and Streamlit.

GenMuzic: A simple dockerized web-app that generates music based on input-prompt. Used PyTorch, Transformers and Meta's Audiocraft.

In-Painting App: Developed a simple Gradio web-app that performs Stable Diffusion on selective segments of an image that is segmented using Meta's Segment Anything Model. This project got shortlisted to Backdrop Build Cohort.

Stream-Segment : Developed a dockerized web-application to perform semantic segmentation on images using pre-trained DeepLabV3-ResNet101 model.

Mask Police : Developed a Deep learning model capable of detecting whether a person is wearing face mask or not in real-time, using MobileNet V2 architecture.

Snap Filters : Developed a Python3 application for overlaying SnapChat-like filters on live video feed by performing face detection and HoG-feature extraction.

CO-CURRICULAR

President

June 2023 - Present

[Cretus \(Automation and Robotics Club\), Pandit Deendayal Energy University](#)

- Conducted 5+ sessions, participated in 2 National-level competitions, and built several projects with students and professors
- **Projects**: Mini self-driving vehicles (in progress), Swarm drones, Soccer bots, line follower, obstacle avoidance robot, 6-DOF RRR manipulator, Gesture-controlled robotic arm (in progress).

GDSC Lead

2023 - Present

[Google Developer Student Club, Pandit Deendayal Energy University](#)

- Mentored students in Google Training Programs of Tensorflow, GCP and Flutter, volunteered in organizing events like GDSC WoW 2023, GDG DevFest 2022
- **Projects**: Decentralized Voting System (in progress), SAM-Stable Diffusion pipelined web application