

MUKESH DEWANGAN

Machine Learning • Deep Learning • Data Science
Sophomore at IITGN | Nationality: Indian Citizen

+91 9617568990 @ 23110211@iitgn.ac.in in Mukesh Dewangan github.com/MukeshK17 mukeskh17.github.io

EDUCATION

Indian Institute of Technology Gandhinagar (IITGN)			Gandhinagar, Gujarat	
B.Tech in Mechanical Engineering with Minors in Computer Science (8.42)			2023-2027	
Qualification	Specialization	Institute	Year	CPI/%
B.Tech	Mechanical Engineering	IIT Gandhinagar	Present	8.42
Class XII	Physics, Chemistry, Maths	Sri Sankara Vidyalaya	2023	90.8
Class X		Aditya Birla Public School	2021	97.6

EXPERIENCES

Omdena	Community Head: Tushar Aggarwal
Machine Learning Intern	Jan'25-Present
<ul style="list-style-type: none">Automated Pothole Detection and Prioritization System for Kolkata, India - Collaborating with over 100 global contributors to create a machine learning-driven solution for detecting and prioritizing potholes in Kolkata. The project involves geospatial data analysis, model development using deep learning and computer vision, and seamless integration for deployment.The aim is to enhance the accuracy of pothole detection by making a robust network, streamlining the identification process, and facilitate timely reporting to city authorities for improved urban infrastructure.	
Maker Bhavan Foundation	IIT Jammu
Invention Factory Intern • Youtube	May'24-July'24
<ul style="list-style-type: none">Redesigned the conventional sanitary pads with better prevention of leaking soiled waste after use.Research on material properties of sanitary pads and optimizing them, reducing plastic waste.Filing patents in India and the US for the design and structure of the sanitary pad.	

SELECTED PROJECTS

Next Character/Token Predictor - Streamlit Application	Prof. Nipun Batra
Python • PyTorch • Streamlit App • Github Repo	Nov'24-Dec'24
<ul style="list-style-type: none">Developed a pipeline model for next-character prediction based on preceding k characters.Fine-tuned models on diverse datasets with varying embedding dimensions and configurations, optimizing for different text corpora (Malgudi Days, A Suitable Boy, Three Men In A Boat, Lord of the Flies).Deployed an interactive Streamlit application allowing users to adjust hyperparameters, including token embedding dimensions (e.g., 20, 40, 80) for enhanced experimentation and analysis.	
Image and Audio Reconstruction and Image Compression	Prof. Nipun Batra
Python • PyTorch • Scikit-Learn • Github Repo	Sept'24-Oct'24
<ul style="list-style-type: none">As a group assignment in Machine Learning, developed algorithms for image and audio reconstruction using Random Fourier Features (RFF) and linear regression to map spatial/image coordinates (X, Y) to pixel color values (R, G, B) and time (t) to amplitude (A) for audio signals.Implemented reconstruction pipelines for custom datasets, calculating metrics such as Root Mean Squared Error (RMSE), Peak Signal-to-Noise Ratio (PSNR) for images and Signal-to-Noise Ratio (SNR) for audio to evaluate model performance.Applied super-resolution techniques to upscale images by a factor of 2, leveraging RFF to predict high-resolution pixel values from low-resolution inputs.Reconstructed mixed pixels in images using data analytics, pattern recognition, and image processing techniques.Applied mathematical methods like matrix factorization to reduce dimensionality, enhance image quality, and repair damaged pixels efficiently.	
Digit Recognition	Prof. Nipun Batra
Python • PyTorch • Scikit-Learn • Github Repo	Oct'24-Nov'24
<ul style="list-style-type: none">Developed and evaluated models for Digit Recognition using MNIST and Fashion MNIST datasets, including Multilayer Perceptron (MLP), Logistic Regression, and Random Forest.Achieved high performance (over 92 % accuracy) with MLP and Random Forest, demonstrating strong model optimization and tuning skills.	

- Conducted t-SNE visualizations to analyze model learning complexity and compared model performance using key metrics like Accuracy, F1-Score, and Confusion Matrix.

AWARDS AND ACHIEVEMENTS

- Received **academic citation** at IITGN for Semester III for excellent academic performance. 2024-2025

SKILLS

Languages and Libraries:

Python

SQL

HTML

TensorFlow

PyTorch

Scikit-Learn

NumPy

Pandas

SciPy

Matplotlib

Tools:

Git

VS Code

LaTeX

Streamlit

Arduino

Adobe Illustrator

Fusion360

Autodesk Inventor

RELEVANT COURSES & CERTIFICATIONS

Completed Institute Courses: Machine learning, Probability, Statistics, Data Visualization, Calculus of Single Variable and Linear Algebra, Calculus of Several Variables, Numerical Analysis

POSITIONS OF RESPONSIBILITY & EXTRACURRICULAR

- **Senior Tech-Expo Executive, Amalthea, Annual Technical Summit** IIT Gandhinagar
Organized corporate outreach for IITGN's Annual Technical Expo, Amalthea, by inviting companies to showcase technologies and connecting them with professors, industrialists, and professionals to foster collaboration and contributions. Apr'24 - Apr'25
- **Junior Design Executive, Amalthea, Annual Technical Summit** IIT Gandhinagar
Designed posters, standees, and other visual materials for IITGN's Annual Tech Expo, Amalthea, using Adobe Illustrator, ensuring professional event branding and effective promotion. Sept'23 - Apr'24