

# MALHAR INAMDAR

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## EDUCATION

<b>Pune Institute of Computer Technology, India</b>	2023 - 2027
<i>Bachelor of Engineering (B.E.) in Electronics and Telecommunication</i>	9.23/10.00
<b>Coursework:</b> Data Structures, Algorithms, Digital Circuits, Differential Equations, Linear Algebra, Vector Calculus	
<b>MOOCS:</b> Machine Learning Specialisation, Deep Learning Specialisation	

## TECHNICAL SKILLS

<b>Programming Languages:</b> Python, C++, C, Javascript, Java
<b>Tools &amp; Frameworks:</b> PyTorch, Tensorflow, Langchain, NumPy, Pandas, Transformer, LLMs, OpenCV, Scikit Learn, NodeJS, Firebase
<b>Software:</b> Git, Github, Flask, VS Code, Streamlit

## EXPERIENCE

<b>Vizuara</b>	Oct 2024 – Present
<i>Research Intern</i>	<i>Pune, India</i>
<ul style="list-style-type: none"><li>Working under <a href="#">Dr. Raj Dandekar</a> to analyze language complexities conducting research in developing Small Language Models (SLM) to improve the comprehension of regional Indian languages, enhancing inclusivity in linguistically diverse contexts.</li><li>Analyzing the performance of different multilingual open source LLM's for synthetic data generation and model complexities for producing suitable coherent output during inference.</li></ul>	
<b>Pune Institute of Computer Technology</b>	Sep 2024 – Present
<i>Research Intern</i>	<i>Pune, India</i>
<ul style="list-style-type: none"><li>Working under <a href="#">Dr. Geetanjali Kale</a> to conduct research on improving diagnostic efficiency in diabetes prediction using Explainable AI tools like LIME and SHAP, focusing on enhancing model interpretability and patient trust.</li></ul>	
<b>PICT Robotics</b>	Oct 2023 – Present
<i>Technical Member</i>	<i>Pune, India</i>
<ul style="list-style-type: none"><li>Selected as a Technical Member of PICT Robotics, a dedicated college club for robotics. Preparing for ABU Robocon 2025, national level robotics competition.</li><li>Designed PCB circuits and Fusion360 CAD Designs for robot designing and built multiple robots, with esp32, IR, Ultrasonic, Hall sensors, like line following robot, ultrasonic sensor robot, hall sensor robot.</li></ul>	

## PROJECTS

<b>DiabetesCare AI</b>	Github Link
<i>Scikit Learn, GridSearch, RandomForest, NumPy, Pandas, seaborn, Gemini LLM, Streamlit</i>	<i>Website</i>
<ul style="list-style-type: none"><li>Built a diabetes prediction system that predicts the occurrence of diabetes in patients based on 8 different medical parameters (gender, age, hypertension, heart disease, smoking history, bmi, HbA1c level, blood glucose level).</li><li>The model was trained on more than 100,000 samples of data and utilized Random Forest algorithm to achieve accuracy of more than 94%. Visualized patient reports displayed for better comprehension of patient health.</li><li>Tuned hyper parameters using GridSearch and used SMOTE to handle imbalanced dataset.</li><li>Also used Gemini LLM API employing gemini-1.5-flash model to provide the patients who are detected positive with personalized lifestyle and dietary suggestions along with information about nearest hospitals in India.</li><li>Integrated a chatbot using Gemini LLM to provide patients a means to interact and solve their queries. Deployed the project on Streamlit for user friendly interface.</li></ul>	
<b>Stable Diffusion from scratch</b>	Github Link
<i>PyTorch, NumPy, Transformer, tqdm, lightning, pillow</i>	<i>Paper Link</i>
<ul style="list-style-type: none"><li>Implemented the "Denoising Diffusion Probabilistic Models" research paper from scratch using PyTorch.</li><li>Constructed generative models for text-to-image, image-to-image functionality producing high quality images based on input prompt.</li></ul>	

- Implemented the architecture using the Variational Auto-encoder (VAE) utilizing U-Net and CLIP Encoder for de-noisification to generate output image.
- Ensured semantically meaningful output were produced using suitable attention mechanism incorporated in the pipeline.

## Harvestify

[Github Link](#)

*Scikit Learn, Logistic Regression, NumPy, Pandas, seaborn, matplotlib, Streamlit*

[Website](#)

- Built an agricultural crop recommendation system using machine learning. The farmer can provide the soil and weather data from their side and the model predicts the suitable crop to grow.
- The input parameters include nitrogen, phosphorus, potassium content, temperature, humidity, ph and rainfall. Achieved high accuracy on the logistic regression model more than 95%.
- The system predicts crop from 20 different crop choices. Deployed the project on Streamlit for user friendly interface.

## MCQ Generator Web Application

[Github Link](#)

*Gemini LLM, Streamlit*

[Website](#)

- Web application built for generating multiple choice questions by analyzing a file to be input by the user in text(.txt) or pdf format.
- The mcqs generated can be in varying order of difficulty as per the choice of user, easy, medium or hard.
- Number of questions are also to be input by the user as per their requirement.
- Used gemini-1.5-flash model for the implementation.

## AWARDS

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### Cretronix Runner-up Credenz'24

April 2024

- Our team of two, was the runner-up in the electronics circuit and arduino microcontroller programming competition at PICT IEEE's annual technical fest Credenz.

### 2nd in research idea presentation track Pulzion'24

Oct 2024

- Stood 2nd in the research Idea Presentation track of Paper Presentation competition held as part of PICT ACM's annual technical fest Pulzion.