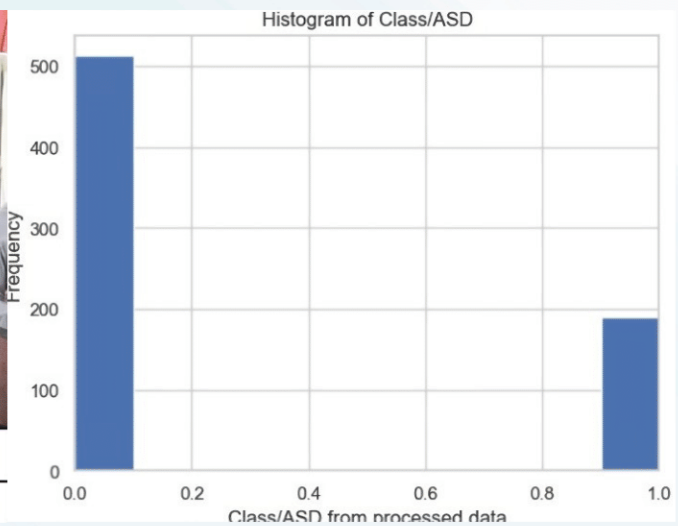


# PROJECTS

## A GLIMPSE OF PROJECTS BY OUR STUDENTS

### AUSTISM DETECTION USING MACHINE LEARNING



| University Enrollment No. | Student Name  |
|---------------------------|---------------|
| 03815611921               | Nandini Singh |

Autistic Spectrum Disorder is a neurodevelopment condition associated with significant healthcare costs, and early diagnosis can significantly reduce these. Unfortunately, waiting times for an ASD diagnosis are lengthy and procedures are not cost effective.

This is a binary classification problem, given some attributes of a person, the model can predict whether the person would have ASD using Supervised machine learning.

**SUPERVISOR: DR. ARCHANA KUMAR  
& MS. GARIMA GAKHAR**



| UNIVERSITY ENROLLMENT NO. | STUDENT NAME      |
|---------------------------|-------------------|
| 02115611921               | JATIN SINGH SAGOI |

**SUPERVISOR: DR. ARCHANA KUMAR  
& MS. GARIMA GAKHAR**

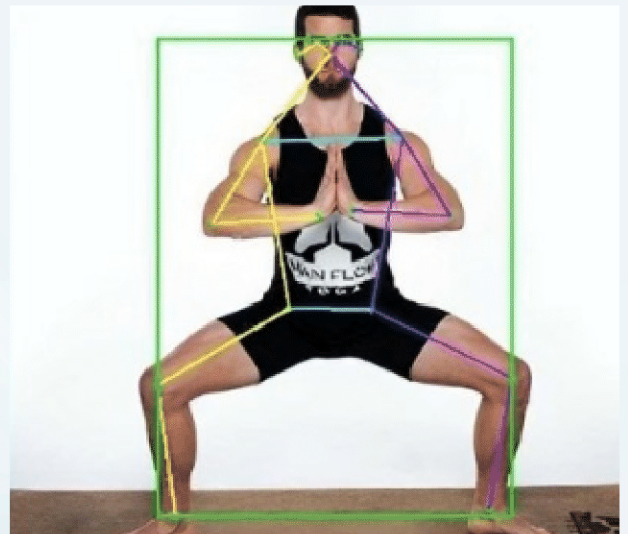
## YOGA DELIGHT

A yoga application which detects posture using Deep Learning.

With real-time data captured from camera, a person can get feedback in the application on the accuracy of their pose and keep track of their fitness goal.

This application can be put to use where a Yoga/fitness enthusiast can practice Yoga without the need of an instructor.

The principle reason of the project is to have a user practice Yoga poses accurately and be able to keep a track of daily Yoga routine.



## CROP FORECASTING WITH SATELLITE DATA

Better understanding crop yields and how to maximize efficiency of crops is an urgent need.

Used sentinel-2 satellite radar data accessed through Microsoft's Planetary Computer API to build a ml model that predicts rice crop yield for a given geographical location.

Different indices like RVI, NDVI, NDRE, GNDVI were calculated with the help of the band data from the satellite. Which indicates the crop's health and yield.

| District | Latitude  | Longitude  | Season(SA = Summer, AW = Winter, WS = Winter Spring) | Rice Crop Intensity(D-Double, T=Triple) | Date of Harvest | Field size (ha) | Rice Y (kg) |
|----------|-----------|------------|------------------------------------------------------|-----------------------------------------|-----------------|-----------------|-------------|
| Chau_Plu | 10.530542 | 105.243554 | SA                                                   | T                                       | 15-07-2022      | 2.40            | 5           |
| Chau_Plu | 10.509250 | 105.265096 | SA                                                   | T                                       | 15-07-2022      | 2.40            | 6           |
| Chau_Plu | 10.487721 | 105.192484 | SA                                                   | D                                       | 15-07-2022      | 1.95            | 6           |
| Chau_Plu | 10.484463 | 105.241281 | SA                                                   | T                                       | 15-07-2022      | 4.30            | 6           |
| Chau_Plu | 10.530558 | 105.252744 | SA                                                   | D                                       | 14-07-2022      | 3.30            | 6           |

```

Fetching Data from API

catalog = pystac_client.Client.open("https://planetarycomputer.microsoft.com/api/stac/v1")

def get_sentinel_data(longitude, latitude, season, assets):
    """
    Returns a list of WV, WV, WV/N values for a given latitude and longitude over a given time period (base
    Attributes:
    longitude - Longitude
    latitude - Latitude
    season - The season for which band values need to be extracted.
    assets - A list of bands to be extracted
    """
    bands_of_interest = assets
    if season == 'SA':
        time_slice = "2022-05-01/2022-08-31"
    if season == 'WS':
        time_slice = "2022-08-01/2022-11-31"
    return pystac_client.Client.open("https://planetarycomputer.microsoft.com/api/stac/v1").search(

```



# **DR. AKHILESH DAS GUPTA**

## **INSTITUTE OF TECHNOLOGY & MANAGEMENT**

Department of Artificial Intelligence and Data Science

**Projects displayed during AI TechnoUtsav 1.0 in collaboration  
with IEEE ADGITM at Technorax v9.0.**

| <b>S.No.</b> | <b>Project Name</b>                                          | <b>Student Name</b>                           | <b>Year</b> | <b>Date<br/>(Presented)</b> |
|--------------|--------------------------------------------------------------|-----------------------------------------------|-------------|-----------------------------|
| 1            | Sign Language Recognition                                    | Nandini Singh                                 | Third       | 12.10.23                    |
| 2            | Movie Review Sentiment Analysis                              | Mayank Bhardwaj                               | Third       | 12.10.23                    |
| 3            | Advance Attendance System using OpenCV                       | Hardik Sharma<br>Sahil Gupta<br>Ansh Varshney | Third       | 12.10.23                    |
| 4            | Machine Learning Approaches For Real Estate Price Prediction | Siddharth Upadhyay<br>Jyoti Rana              | Second      | 13.10.23                    |
| 5            | Virtual Exporation and Guidance Assistance(VEGA)             | Mayank Garg                                   | First       | 13.10.23                    |





# DR. AKHILESH DAS GUPTA

## INSTITUTE OF PROFESSIONAL STUDIES

(Formerly Dr. Akhilesh Das Gupta Institute of Technology & Management)



**Department of Artificial Intelligence and Data Science**

**“Utkarsh-2024”**

**Technical Exhibition**

**Projects Details**

| Sr. No. | Project Name                                                          | Students Name                                         | Year                 | Date     |
|---------|-----------------------------------------------------------------------|-------------------------------------------------------|----------------------|----------|
| 1       | FemineSync- Break The Taboo                                           | Hardik Sharma<br>Ansh Varshney<br>Sahil Gupta         | 3rd year             | 15.03.24 |
| 2       | CanvasAI-Draw With Hand Gestures                                      | Nandini Singh<br>Jatin Singh                          | 3rd year             | 15.03.24 |
| 3       | Driver Drowsiness Detection System                                    | Subham Singla<br>Anurag Kumar Jha<br>Ayushmaan Kamboj | 3rd year             | 15.03.24 |
| 4       | Inventory Management And Performance Automation Control Tool (IMPACT) | Mayank Garg<br>Jyoti Rana                             | 1st year<br>2nd year | 15.03.24 |

# **FemineSync- Break The Taboo**

Hardik Sharma(35215611921/T-13) , Ansh Varshney(03215611921/T-13)  
Sahil Gupta(35315611921/T-13)

**Overview: FemineSync**, is a groundbreaking initiative dedicated to revolutionizing conversations surrounding menstrual health and periods. In a world where the menstrual cycle is often shrouded in stigma and silence, Feminesync emerges as a beacon of empowerment and education. For far too long, menstruation has been a taboo topic, relegated to hushed tones and hidden away from public discourse. Yet, the menstrual cycle is a natural and integral aspect of the female experience, affecting individuals across the globe in profound ways. From adolescence to menopause, the menstrual journey is a complex interplay of physiological changes, emotional fluctuations, and societal influences. Feminesync seeks to dismantle the barriers of shame and misinformation that surround menstruation. The platform provides a safe and inclusive space for individuals of all genders to engage in open dialogue, gain knowledge, and foster a deeper understanding of menstrual health. Through a combination of advocacy, education, and community-building,

*FemineSync strives to:*

**Destigmatize Menstruation:** By fostering open conversations and challenging societal norms, we aim to normalize discussions about menstruation and eradicate the shame associated with it.

**Promote Education:** We believe that knowledge is power. Feminesync offers comprehensive resources and evidence-based information to empower individuals to make informed decisions about their menstrual health.

**Advance Menstrual Equity:** Recognizing the disparities in access to menstrual products and healthcare, we advocate for policies and initiatives that promote menstrual equity and ensure that everyone has access to the resources they need.

**Celebrate Diversity:** Celebrate the diversity of menstrual experiences across cultures, ages, and identities. Feminesync embraces intersectionality and amplifies the voices of marginalized communities within the menstrual health movement.

**Foster Supportive Communities:** Through online forums, support groups, and events, Feminesync facilitates connections and fosters a sense of solidarity among individuals navigating their menstrual journeys.

# **CanvasAI - Drawing with Hand Gestures**

Nandini Singh (03815611921/T-13), Jatin Singh (02115611921/T-13)

## **Introduction:**

CanvasAI is a computer vision project aimed at providing an innovative platform for creative expression through gesture-based drawing. Utilizing the capabilities of OpenCV and machine learning via Mediapipe, CanvasAI detects and tracks hand landmarks, enabling users to draw in the air with hand gestures. This report outlines the objectives, implementation details, outcomes, and future scope of the CanvasAI project.

## **Objectives:**

- The primary objectives of CanvasAI are as follows:
- Develop a system for gesture-based drawing using hand gestures.
- Provide an interactive canvas where users can draw using different colors.
- Implement functionalities for clearing the canvas and selecting colors.
- Create a user-friendly interface for intuitive interaction.

## **Results and Output:**

CanvasAI successfully provides a real-time demonstration of gesture-based drawing, allowing users to express their creativity by drawing in the air. Users can choose from a variety of colors, clear the canvas, and enjoy an interactive drawing experience.

## **Conclusion:**

CanvasAI represents an innovative approach to digital drawing, leveraging computer vision and machine learning technologies. The project demonstrates the feasibility of gesture-based interaction for creative applications and opens avenues for future research and development in this domain.

# **Driver Drowsiness Detection System with alarm using OpenCv and Deep Learning**

Shubham Singla(02215611921/T-13) , Anurag Kumar Jha(01615611921/T-13)  
Ayushmaan Kamboj(00815611921/T-13)

**"Driver Drowsiness Detection System"** is a comprehensive project aimed at enhancing road safety by leveraging cutting-edge technology. Our system employs state-of-the-art computer vision and machine learning techniques to detect signs of driver drowsiness in real time, thus preventing potential accidents caused by driver fatigue.

For training purposes, we used a vast image dataset {MRL}, i.e. Media Research Lab dataset which contains more than 60,000 images of eyes divided into two main categories (open/closed). After training the model by applying various neural network layers and activation functions, we saved the model by name (model.h5) checkpoint where it was giving the maximum accuracy (94% approx.) at around 10 epochs. After the model had been created, we also made a separate GUI for visualization purposes and exhibition. In the GUI, once we run the code, a tkinter window appears with the camera on and recording the face especially focusing on the eyes. Once the person in front of the camera slightly shuts his/her eyes off for a few seconds (threshold value of around 3-4 seconds), the camera will detect it and the screen will show a red text saying "Eyes are closed" with an alarm buzzing off for a few seconds. For closing the GUI, directly pressing "E" will close the Tkinter window.



# **Inventory Management and Performance Automation Control Tool (IMPACT)**

MAYANK GARG (005115611923/1<sup>st</sup> Yr. -M), Jyoti Rana (05415611922/S-11)

The project aims to develop an advanced **Inventory Management and Performance Automation Control Tool** to streamline inventory tracking, management, and performance monitoring processes for businesses. This project involves adapting digital bill-making, due management, low system requirements and no high education requirement.

**IMPACT** offers a range of features that cater to the needs of small businesses or individuals, providing a user-friendly, cost-effective, and versatile solution for managing digital billing, inventory, and credit transactions.

## Glimpses of Technical Exhibitions





