**Weekly Report – Week** **3**

**Project Name:**

Person Re-identification

**Course Name:** CSE623 Machine Learning Theory and Practice  
**Professor** **Name:** Prof Mehul Raval  
**University:** Ahmedabad University

**Team Members:**

1. **Shlok Shelat** - AU2240025
2. **Purvansh Desai** - AU2240036
3. **Shrey Salvi** - AU2240033
4. **Rushi Moliya** - AU2240020
5. **Dhananjay Kanjariya** – AU2240023

**Objectives:**

* Complete the research scope concentrating on person re-identification (ReID) with classical machine learning approaches.
* Carry out a thorough literature review to know the previous work on ReID with feature extraction methods (**HOG, SIFT, color histograms**) and their fusion.
* Establish the research objectives and identify the controlled Kaggle Person ReID dataset and the difficult Market-1501 dataset as benchmarking metrics.

**Work Completed:**

*Topic and Scope Finalization:*

Set the direction of the project on utilizing light-weight, interpretable machine learning methods for ReID rather than computationally intensive deep learning techniques.

*Literature Review:*

Searched classical works like **Dalal and Triggs** (HOG), Lowe (SIFT), and research on color histogram-based identification. Analyzed newer hybrid techniques and identified their strengths and weaknesses in controlled environments as compared to real-world settings.

*Dataset Acquisition:*

Collected and acquired the Kaggle Person ReID dataset (simplified conditions) and the **Market-1501 dataset** (sophistication of real-world scenarios) to compare.

*Setup Environment:*

Prepared the development environment using Python 3.8, OpenCV 4.5, scikit-learn 0.24, and NumPy 1.20 for features extraction, dimensional reduction (**PCA**), and KNN classification.

*Challenges:*

Understanding the sacrifices of deep learning compared to classic methods in relation to computational effectiveness vs. solidity. Ensuring clarity on dataset splits and preprocessing requirements for controlled and real-world datasets.

**Next Steps:**

Begin with initial data preprocessing and exploratory data analysis. Create a preliminary pipeline for feature extraction using HOG, SIFT, and color histograms on the Kaggle dataset.