COIL 20 DATASET : 1440 IMAGES

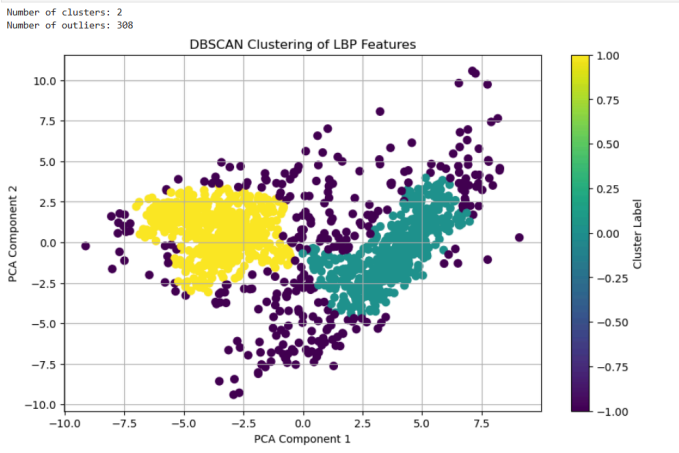
LBP:
Number of images processed: 1440
Shape of LBP features: (1440, **26**)

HOG:
Number of images processed: 1440
Shape of HOG features: (1440, **8100**)

SIFT:
Number of images processed: 1440
Shape of SIFT-based BoVW features: (1440, **100**)

CALTECH 7 : [3 VIEWS : LBP , WM , CENTRIST]
DB-SCAN CLUSTERING

LBP:



Extracted LBP features for 1474 images.
Feature shape: (1474, **26**)

LBP features after PCA reduction shape: (1474, **2**)

Optimal EPS: 0.7, min samples = 20
Clusters: 2 , Silhouette Score: 0.412

Number of clusters: 2
Number of outliers: 308

Normalized Mutual Information (NMI): 0.299
Rand Index (RI): 0.708

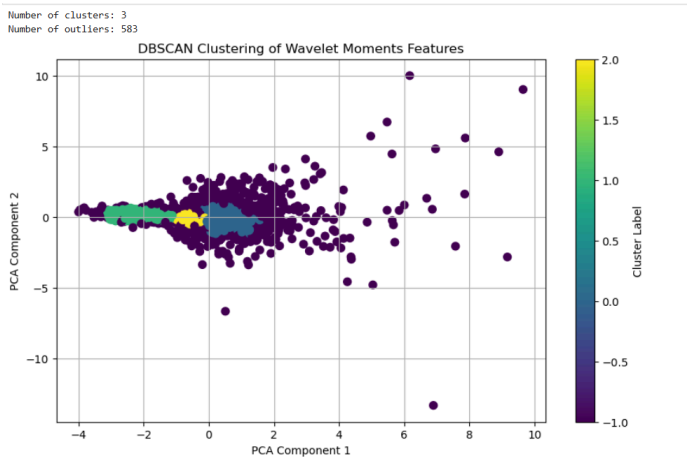
WM:

Extracted WM features for 1474 images.
Feature shape: (1474, **8**)

WM features after PCA reduction shape: (1474, **2**)

Optimal EPS: 0.2, min samples = 20
Clusters: 3, Silhouette Score: 0.096

Number of clusters: 3
Number of outliers: 583



Normalized Mutual Information (NMI): 0.282
Rand Index (RI): 0.665

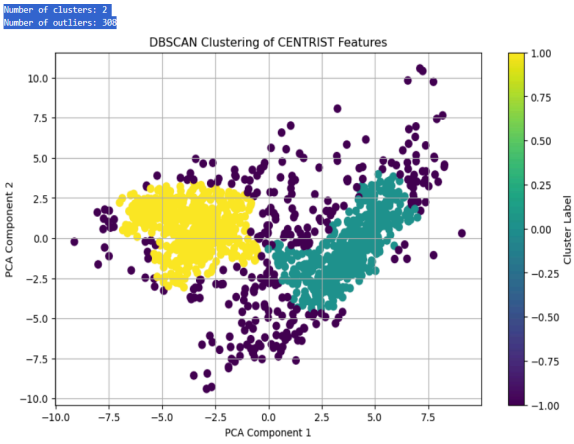
CENTRIST:

Extracted CENTRIST features for 1474 images.
Feature shape: (1474, **26**)

CENTRIST features after PCA reduction shape: (1474, **2**)

Optimal EPS: 0.7, min samples = 20
Clusters: 2, Silhouette Score: 0.412

Number of clusters: 2
Number of outliers: 308

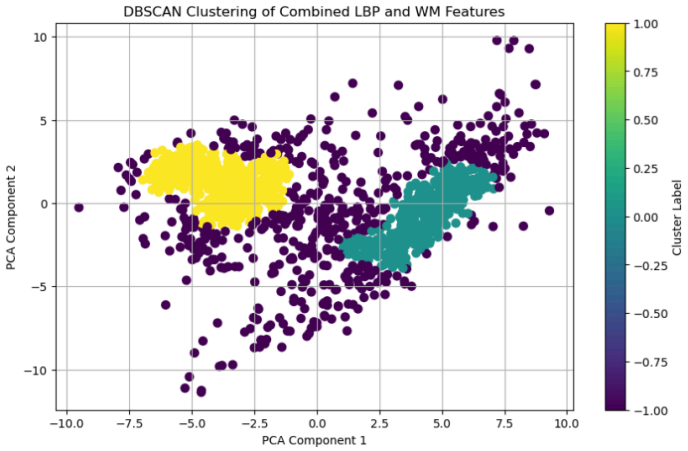


Normalized Mutual Information (NMI) for CENTRIST: 0.299
Rand Index (RI) for CENTRIST: 0.708

LBP + WM :

Extracted combined features for 1474 images.
Combined feature shape: (1474, **34**)

Combined LBP and WM features after PCA reduction shape: (1474, 2)



Optimal EPS: 0.6, min samples = 20
Clusters: 2, Silhouette Score: 0.305

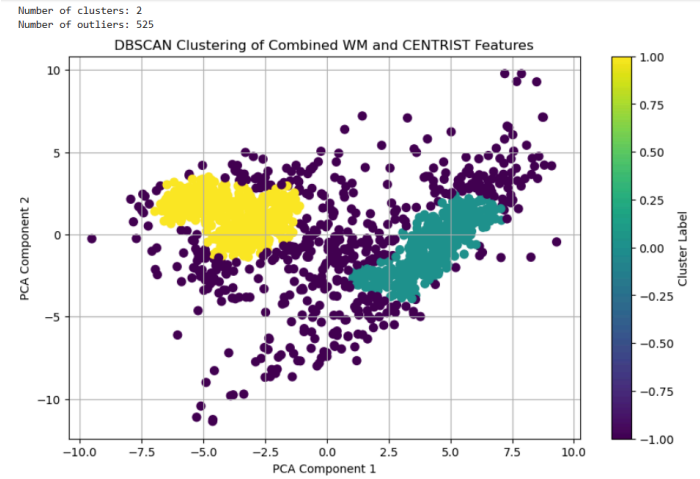
Number of clusters: 2
Number of outliers: 525

Normalized Mutual Information (NMI) for Combined Features: 0.289
Rand Index (RI) for Combined Features: 0.673

CENTRIST + WM:

Extracted combined features for 1474 images.
Combined feature shape: (1474, **34**)

Combined CENTRIST and WM features after PCA reduction shape: (1474, 2)



Optimal EPS: 0.6,min samples = 20
Clusters: 2, Silhouette Score: 0.305

Number of clusters: 2
Number of outliers: 525

Normalized Mutual Information (NMI) for WM and CENTRIST Combined Features: 0.289
Rand Index (RI) for WM and CENTRIST Combined Features: 0.673

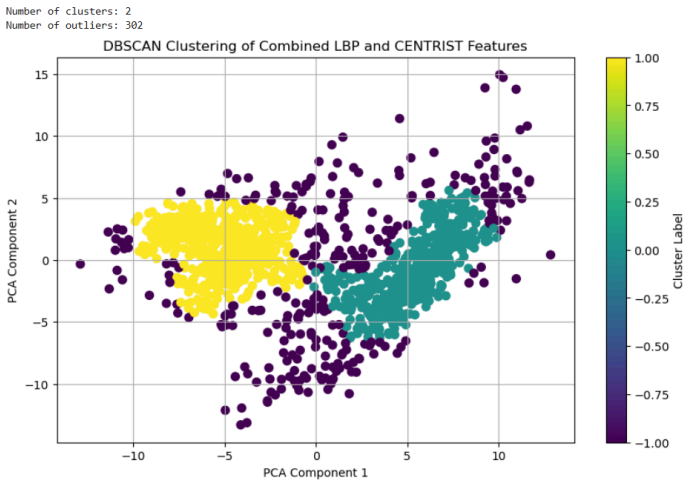
CENTRIST + LBP

Extracted combined features for 1474 images.
Feature shape: (1474, **52**)

Combined LBP and CENTRIST features
after PCA reduction shape: (1474, 2)

Optimal EPS: 1.0, MIN SAMPLES = 20
Clusters: 2, Silhouette Score: 0.415

Number of clusters: 2
Number of outliers: 302



Normalized Mutual Information (NMI) for CENTRIST and LBP Combined Features: 0.302
Rand Index (RI) for CENTRIST and LBP Combined Features: 0.710

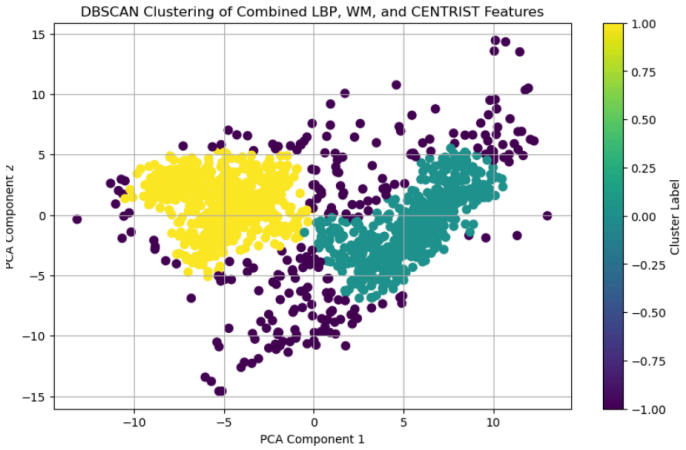
CENTRIST + LBP + WM

Extracted combined features for 1474 images.
Feature shape: (1474, 60)

Combined LBP, WM, and CENTRIST features
after PCA reduction shape: (1474, 2)

Optimal EPS: 1.1,MIN SAMPLES = 20
Clusters: 2, Silhouette Score: 0.454

Number of clusters: 2
Number of outliers: 245



Normalized Mutual Information (NMI) for LBP, WM, and CENTRIST Combined Features: 0.320
Rand Index (RI) for LBP, WM, and CENTRIST Combined Features: 0.720