

CS419 - Assignment 3

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Accuracy Table with Corresponding Descriptors

Descriptor	Euclidean	Manhattan	Mahalanobis	Chi-squared
Area	0.18714	0.18714	0.07285	0.18714
Perimeter	0.14571	0.14571	0.09857	0.14571
Convexity	0.13	0.13	0.07285	0.13
Circularity	0.13142	0.13142	0.06285	0.13142
Rectangularity	0.11	0.11	0.08142	0.11
Eccentricity	0.12571	0.12571	0.06714	0.12571
Fourier (Coef. = 5)	0.36285	0.36428	0.31428	0.36142
Fourier (Coef. = 10)	0.50571	0.5	0.41	0.47857
Fourier (Coef. = 15)	0.50571	0.49285	0.34	0.46857
Fourier (Coef. = 20)	0.50571	0.46571	0.30857	0.43142
Fourier (Coef. = 20)	0.50571	0.46571	0.30857	0.43142
Shape Histogram (bins = 4)	0.25	0.25428	0.23857	0.24714
Shape Histogram (bins = 8)	0.47428	0.47857	0.42571	0.48857
Shape Histogram (bins = 12)	0.53	0.56	0.46285	0.54142
Shape Histogram (bins = 16)	0.49857	0.52714	0.40142	0.52
Hu's Moment	0.45714	0.46	0.46571	0.45428
Zernike's Moment	0.12	0.11285	0.08142	0.11571
Geometric Moment	0.52428	0.52857	0.54714	0.52
Flusser Moment	0.18857	0.18857	-	0.18857
Combination 1	0.33142	0.33285	0.32428	0.32142
Combination 2	0.67285	0.66571	0.66571	0.64428
Combination 3	0.74714	0.78	0.68857	0.73285
Combination 4	0.71428	0.77428	0.70714	0.75285
Combination 5	0.79714	0.8314	0.65857	0.81285
Combination 6	0.53571	0.57	0.56428	0.55571
Combination 7	0.51571	0.52428	0.45285	0.46857
Combination 8	0.78571	0.85142	0.69428	0.70285

Table 1: Accuracy Table

Notes

- **Combination 1:** Area, Perimeter, and Circularity
- **Combination 2:** Area, Perimeter, Circularity, Convexity, Rectangularity, and Eccentricity
- **Combination 3:** Area, Perimeter, Circularity, Convexity, Rectangularity, and Eccentricity with Fourier Descriptor
- **Combination 4:** Area, Perimeter, Circularity, Convexity, Rectangularity and Eccentricity with Shape Histogram
- **Combination 5:** Area, Perimeter, Circularity, Convexity, Rectangularity and Eccentricity with Shape Histogram and Fourier Descriptor
- **Combination 6:** Hu's Moment and Geometric Moment
- **Combination 7:** Hu's, Geometric, Zernike, and Flusser Moments
- **Combination 8:** Area, Perimeter, Circularity, Convexity, Rectangularity, Eccentricity, Shape Histogram, Fourier Descriptor, Hu's Moment, and Geometric Moment

Combination 8, which is the combination of all descriptors gives the best accuracy among all, as can be seen from the table above.