Report of Palm Biometry Project

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Dataset

For this task dataset containing 4 individuals with 5 photos of palm for each person. The photos in dataset were made on the contrast black background. They were taken on different devices, the persons were asked to make photos in slightly different positions with fingers not touching each other and not curving.

Figure 1 – Examples of photos

Method

After preprocessing, the fingers and the main part of the palm were highlighted in the photos.

From the measurements of the palm and fingers, features were identified: the ratio of the width of the fingers to their length, the ratio of the width of the fingers in the upper quarter to their lower quarter, the ratio of the width of the palm to the length, the ratio of the upper quarter of the palm to the lower quarter of the palm, the ratio of the length / thickness of the middle finger and palm , the ratio of the length / width of the little finger to the thumb, the ratio of the ring to the index finger, the ratio of the width of the stump to the width of the palm, the ratio of the area of the fingers to the area of the palm.

Due to the fact that all 19 selected features are ratios of commensurate values, no additional normalization was required.

Euclidean distance was used as a metric.

Result

Empirically it was found that the Euclidean metrics for the palms of impostors and real persons are linearly separable, the metrics, FAR = FRR = 0%