

# Classification of shapes using transformed landmarks or interior angles

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This study is described in two parts, both of which are concerned with shape classification. The first part discusses a decision tree classification trained on transformed landmarks, which are produced by a generalized Procrustes analysis. The second focuses on establishing a shape characterised by the set of measurement interior angles in order to use them in classification. This new shape measurement, under a certain condition, is established without the need to remove similarity transformations. Based on this interesting and desirable property, multivariate classification approaches, such as discriminant analysis, can straightforwardly be applied to shape dataset. The empirical distribution of the interior angles is investigated using a kernel method. A comparison between the decision tree, linear discriminant analysis and nearest mean shape classifier is made to assess the best technique with respect to the performance of allocation. Our results based on either simulated or real configurations show that the linear discriminant classifier trained on interior angles supplies the highest performance.

## References

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