Title: Formulation of invariants for discrete Tchebichef moments and image classification

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Abstract

Due to the discrete nature and the orthogonality of the basis functions, discrete Tchebichef moments are superior global features extractor. However, the moments cannot be directly used by recognition system as the object images might already being deformed in various ways. Invariants that are insensitive to particular deformation and provide enough discrimination power to distinguish objects belonging to different classes are therefore important to help simplify classification system and enhance recognition performance. Two major types of invariant that are widely used by recognition systems are being studied. They are anisotropic scale and translation (AST) invariants, and translation, rotational and scale (TRS) invariants. Current proposed algorithms on discrete Tchebichef moments are reviewed and new invariants algorithms which are numerically efficient and with better discrimination power are proposed. An empirical study showed that the propose algorithms are robust to noisy conditions. They also give better recognition performance on discriminating sets of very similar Chinese handwritten characters.

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