

Semi-variogram estimators and distortion measures of signal spectra are utilized in this paper for image texture retrieval. On the use of the complete Brodatz database, most high retrieval rates are reportedly based on multiple features and the combinations of multiple algorithms, while the classification using single features is still a challenge to the retrieval of diverse texture images. The semi-variogram, which is theoretically sound and the cornerstone of spatial statistics, has the characteristics shared between true randomness and complete determinism and, therefore, can be used as a useful tool for both the structural and statistical analysis of texture images. Meanwhile, spectral distortion measures derived from the theory of linear predictive coding provide a rigorously mathematical model for signal-based similarity matching and have been proven useful for many practical pattern classification systems. Experimental results obtained from testing the proposed approach using the complete Brodatz database, and the the University of Illinois at Urbana-Champaign texture database suggests the effectiveness of the proposed approach as a single-feature-based dissimilarity measure for real-time texture retrieval.