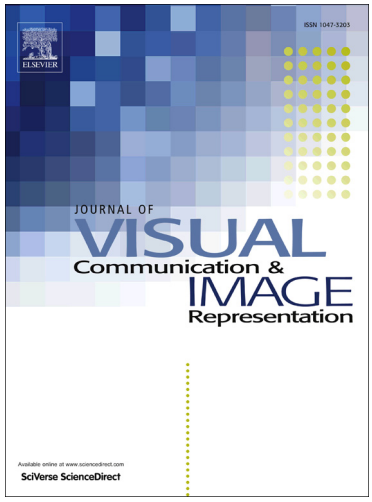

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Steganalysis of Content-Adaptive Binary Image Data Hiding

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Abstract

Most state-of-the-art binary image data hiding methods concentrate the embedding changes on the centers of l-shape patterns. This embedding criterion, however, introduces an unbalanced modification on boundary structures. This paper proposes a steganalytic scheme to detect recently developed content-adaptive binary image data hiding by exploiting the embedding effect associated with the l-shape pattern-based embedding criterion. We first assess how changing l-shape patterns affects the distribution of a special 4×3 sized pattern. Based on the assessment, 4 classes of patterns that model the distribution of two pixels oriented the direction of pattern changing are employed to define a 32-dimensional steganalytic feature set. Experimental results show that, despite of the low dimensionality, the proposed steganalytic features can effectively detect state-of-the-art binary image data hiding schemes, especially those pattern-tracing-based approaches.

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