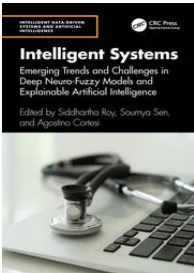


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Chapter

Local Feature-Based Steganographic Scheme Using Chaos Theory and Arnold Scrambling

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ABSTRACT

We must manage a substantial volume of data generated digitally each day from many sources and transmitted over open networks that are perpetually under threat. Consequently, protecting such sensitive data requires robust security measures. This paper develops a dual-layer steganographic method to protect sensitive information. Before data embedding, the cover-media sequence employs the Arnold-scrambling approach to obscure the spatial arrangement of the pixels. The XOR method is employed in the secondary security layer to permute the confidential bits employing chaos theory. The quantity of bits required in a specific block has been dynamically constrained by applying the local attribute. To guarantee superior algorithmic security, significant visual imperceptibility, and embedding capability of stego-image sequences, we conduct an extensive experiment on a large dataset. The proposed method's efficacy is demonstrated through a comparative analysis that employs sophisticated performance metrics.

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