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MULTI-OBJECTIVE GENETIC ALGORITHM OPTIMIZATION FOR IMPROVED ROBUSTNESS AND TRANSPARENCY IN IMAGE WATER MARKING

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ABSTRACT

Finding the optimal trade-off between watermark longevity and perceptual transparency is the goal of multi-objective evolutionary algorithm optimization for image watermarking. To achieve this goal, we optimize the Singular Value Decomposition (SVD) and the Lifting Wavelet Transform (LWT) using Multi-Objective Genetic Algorithms (MOGAs). Combining AI with signal processing provides a fresh perspective on the challenges of picture watermarking. Finding the MSFs' sweet spot of performance could be challenging. These numbers, however, are the outcome of a genetic algorithm optimization with many objectives. The experimental evidence demonstrates that the suggested technique outperforms the present standard in terms of reliability and clarity.

Keywords: Genetic Algorithm, Robustness, Transparency, Image, Watermark.