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A Review of Watermarking Techniques for Privacy and Security

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Abstract

Background: Digital image watermarking is an emerging technology for providing privacy and security on digital media. In this technique, a small pattern of bits is inserted into a cover such as a digital image, audio and video in such a way that the original image may maintain the imperceptibility, robustness, fragility and payload capacity. This small pattern of bits is known as a watermark. It may be visible or invisible in the cover. Watermarking techniques are useful in many applications such as broadcast monitoring, owner identification, content authentication, transaction tracking, copy control and copyright protection. In the literature, Watermarking techniques are classified as domain based such as spatial domain and frequency domain proposed by Sanjay Kumar et. al. [2], digital document based, human perception based and application based. All these watermarking techniques have some merits and demerits.

Objectives: In the present scenario, many researchers are utilizing various approaches of artificial intelligence, machine learning and data science to optimize and improve existing algorithms. Therefore, a review is required of various watermarking techniques which are inspired by many approaches of artificial intelligence, machine learning & data science.

Methodology: Review of various watermarking techniques is based on many research articles published recent years. [1][3]

Results and discussion: In this paper, a review of watermarking techniques is presented. In this review, different watermarking techniques are categorized based on different approaches of AI and machine learning and data science. Further, the performance summary of each technique is summarized in tabular form.

Conclusions and future work: This review paper may help to understand the current research in the field of watermarking. Further, it may be helpful for the researchers to implement efficient, robust and secure watermarking algorithms for copyright protection, content authentication and many more applications

References

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