

# Book Review

## **Reversible Digital Watermarking: Theory and Practices**

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**Synthesis Lectures in Information Security, Privacy and Trust**

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This book has six chapters with many tables and figures and bibliography.

The first chapter on Introduction provides a focus on Digital Watermarking initially followed by a brief basic remark on Reversible digital watermarking which is a fragile and robust watermarking technique. The reversible watermarking is explained with a simple workflow chart.

In the next chapter, the authors using two major case studies in medical imaging and military imaging have proved that the adoption of reversible watermarking can lead to the reduction of deterioration of diagnosis accuracy in medical imaging and lower residual error rate in military imaging. These two case studies resemble with a research paper on it.

The review of the several available watermarking techniques is outlined in the third chapter. The authors have modified the Feng et al's three way classification of the techniques to present the review; however the background for such modification is not detailed. The five techniques, viz., Different Expansion, Data Compression, Histogram-Bin-Shifting, Pixel Prediction and Modification of Frequency Domain Characteristic are presented with description of strong algorithms associated with the techniques. The review is thus detail the algorithms rather than techniques as a whole.

The enumerated algorithms in the previous chapter are now detailed with example in the next chapter. Reversible watermarking extensively depends on the analysis of high spatial correlation among neighboring pixels. This unit presents exclusive pixel analysis based on pixel prediction reversible watermarking algorithms. The embedding, extraction and the experimentations are outlined in the current unit. Embedding results and values are presented to know the accurate results.

Even the reversible water marking has benefits, it also leads to many difficulties while implementation. The challenges in implementation are addressed in the fifth chapter. Reversible watermarking operates based on well defined algorithms. While algorithms are analyzed for implementation the run time issues are discussed in this chapter basically followed by the description of the flow chart and operational features.

In the last chapter the authors have discussed the performance improvement of the techniques by detailing the tamper localization property. The procedures coupled with empirical data constitute this chapter. The authors also provide a signal that the reversible watermarking techniques are prone to security threats. The last part of the book is a moderate bibliography of related publications.

Even the book is brief in its content, it introduces unique approaches which are normally unavailable in other documents.

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