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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Book Review

Probabilistic Approaches to Recommendations
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The significance of the recommender systems has been outlined in very large number of texts and literature. The challenges in the recommender systems are wide and they are addressed in many texts out of which this current premier is designed to provide a good outlook on the issues.

This book has seven chapters with appendices and extensive bibliography. The first chapter on recommendation process provides a focus on the fundamental concepts including the formal framework of recommender system, evaluation and challenges. The second chapter introduces the various probabilistic models for collaborative filtering. Mixture modelling is important in the probability modelling and it is focused in this unit.

Authors in this chapter first used the description of the maximum likelihood estimation and its impact on Bayesian modelling. The parameters description and the algorithms associated with the models are adequately explained here. The structure of the proposed models leads the users to gain a real understanding of the probabilistic approaches.

The chapter four is the crux of the book that explains the probabilistic models in detail. Blocks and pattern discovery are further described with good supporting illustrations. The context features and sequence modelling forms the fifth chapter.

The social recommender systems have their influence in the last few years because of the growth of the web and its impact. Social networks and their topologies are used to explain the social recommender systems. The last chapter on conclusion mainly consists of the challenges. The authors have identified the technological as well as the application-specific challenges in this final chapter.

The appendices describe the Maximization algorithm, variational inference and Gibbs sampling. As the authors claimed this book can be used as a good tool to understand the real world challenges and applications on probabilistic recommendations.

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