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Preface

It is our great pleasure to present in this volume the inaugural issue of the *LNCS Transactions on Data Hiding and Multimedia Security.* Since the mid-1990s, digital data hiding has been proposed as an enabling technology for solving security problems in multimedia distribution. Digital watermarks have now been used in applications including broadcast monitoring, movie fingerprinting, digital rights management, steganography, video indexing and retrieval, and image authentication, to name but a few. In some of these applications, data hiding and cryptographic techniques are combined to complement each other to achieve the goal. This combination resulted in a completely new research field, which now forms one important branch of multimedia security. It is expected that multimedia security will become more and more mature and will play a significant role in future commercial multimedia applications. Besides data hiding, the two related disciplines steganalysis and data forensics, which try, respectively, to detect steganographic transmission and to assert the integrity of media data, are increasingly attracting researchers. They have become another important branch of multimedia security. This new journal, *LNCS Transactions on Data Hiding and Multimedia Security*, aims to be a forum for all researchers in these important and new fields by publishing both original and archival research results.

This first issue contains five papers, divided into three groups. The first group consists of two papers dealing with watermarking. Dittmann et al. introduce a theoretical framework for robust digital audio watermarking algorithms, focusing on the triangle of robustness, transparency and capacity. The authors then compare selected audio watermarking algorithms in the newly developed model. In the second paper, Perez-Freire et al. provide a survey of watermarking security. Whereas watermark robustness has been generally identified with decoding error rate or resistance against intentional removal, watermark security is still a relatively fuzzy concept. This paper clarifies the concepts of watermark security and provides an exhaustive literature overview. It can serve as a starting point for newcomers interested in this important research topic.

The second group contains two papers. Adelsbach et al. discuss efficient implementations of zero-knowledge watermark detectors, which were recently proposed to overcome the drawbacks of symmetric watermarking schemes, i.e., the required disclosure of critical information (such as watermark and key) that jeopardizes the security of embedded watermark once the information is revealed. The authors propose efficient solutions for correlation-based detectors and more generally for watermarking schemes whose detection criteria can be expressed as a polynomial in the quantities required for detection. In the second paper, Koster et al. introduce the concept of personal entertainment domains (PED) in digital rights management (DRM) and outline the architecture of a complete PED-DRM scheme. In PEDs, content is bound to a person rather than to a device, thus providing a better user experience than in current DRM solutions.

The third group contains one paper dealing with steganalysis. Kharrazi et al. report on the use of fusion techniques to improve the detection accuracy of steganalysis. As various powerful staganalysis schemes have been reported in the literature in the past, in practice a steganalyst has to select one or more techniques which he or she applies on a suspected stego image. In the paper, the authors investigate methods that allow one to come to a conclusion if the decisions from these selected steganalytic techniques are contradictory.

We do hope that the inaugural issue of the *LNCS Transactions of Data Hiding and Multimedia Security* is of great interest to this research community and will trigger new research in this exciting field.

Finally, we sincerely thank all of the authors, reviewers and editors who have devoted their time to the success of the journal. Last but not the least special thanks go to Springer and Alfred Hofmann for their continuous support.

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