

Secure Watermarking not at the Cost of Low Robustness

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Abstract : This paper describes a novel watermarking technique which we call the random direction embedding (RDE) watermarking. Unlike traditional watermarking techniques, the watermark energy after the RDE embedding does not focus on a fixed direction, leading to the security against the traditional unauthorized watermark removal attack. In addition, the experimental results show that when compared with the existing secure watermarking, namely natural watermarking (NW), the RDE watermarking gains significant improvement in terms of robustness. In fact, the security of the RDE watermarking is not at the cost of low robustness, and it can even achieve more robust than the traditional spread spectrum watermarking, which has been shown to be very insecure.

Keywords : robustness, spread spectrum watermarking, watermarking security, random direction embedding (RDE)

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