

## State-of-the-art in techniques of text digital watermarking: challenges and limitations

### ABSTRACT

Data protection from malicious attacks and misuse has become a crucial issue. Various types of data, including images, videos, audio and text documents, have given cause for the development of different methods for their protection. Cryptography, digital signatures and steganography are the most well-known technologies used to protect data. During the last decade, digital watermarking technology has also been utilized as an alternative to prevent media forgery and tampering or falsification to ensure both copyright and authentication. Much work has been done to protect images, videos and audio but only a few algorithms have been considered for text document protection with digital watermarking. However, our survey observed that available text watermarking algorithms are neither robust nor imperceptible and as such remain unsecured methods of protection. Hence, research to improve the performance of text watermarking algorithms is required. This paper reviews current watermarking algorithms for text documents and categorizes text watermarking methods based on the way the text was treated during the watermarking process. It also discusses merits and demerits of available methods as well as recent proposed methods for evaluating text watermarking systems and the need for further research on digital text watermarking.

**Keyword:** Digital watermarking; Text watermarking; Text protection; Security; Performance evaluation