

# **Hilbert-Peano and Zigzag: Two Approaches Mapping Pattern of Digital Watermarking for Text Images Authentication**

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## **ABSTRACT**

The wide increment of information and communication technology nowadays in line with the usage of digital documents, the user from different organizations such as education, military, medical, business, and others tend to transfer any official file through various digital platforms. Thus, to secure this confidential data, a digital watermarking technique was chosen. This paper proposed an improved mapping pattern method of a fragile watermarking authentication algorithm for text images. There are various methods for watermark embedding, which mapping pattern is one of them. The aim is to validate and compare the SCAN pattern for digital watermarking in order to produce a fast and efficient authentication algorithm. We proposed a Zigzag SCAN pattern algorithm and compared it with the proposed Hilbert-Peano scheme. The result from this paper shows that Zigzag SCAN algorithm contributed to a superior performance in regard to processing time, while PSNR and MSE are similar.

## **KEYWORDS**

Authentication; Digital watermarking; SCAN pattern; Text image; Zigzag

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