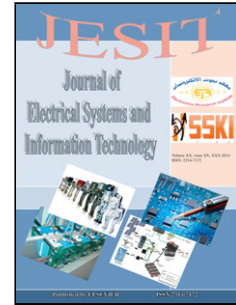


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# Ambiguity attacks on watermarking algorithm based on chirp z-transform, discrete wavelet transform, and singular value decomposition

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## I. ABSTRACT

In this paper, it is shown that there is a fundamental flaw in the paper entitled "A watermarking algorithm based on chirp z-transform, discrete wavelet transform, and singular value decomposition" by Agoyi et al. [1]. The algorithm has watermark ambiguity problem and could not be used as copyright protection and content authentication as stated in the paper.

## Index Terms

Digital watermarking, singular value decomposition, chirp z-transform, discrete wavelet transform, false positive detection.

## II. INTRODUCTION

Recently, Agoyi et al. [1] proposed a watermarking algorithm based on chirp z-transform, discrete wavelet transform, and singular value decomposition and demonstrated its robustness against several attacks. This algorithm is fundamentally flawed, which leads to false positive detection problem. Actually, it was due to improper algorithm design.

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