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RESEARCH ARTICLE

A Novel Syndrome Coding Scheme for Embedding and Minimizing Distortion in Steganography

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Abstract— Within the field of Computer Forensics, investigators should be aware that the method steganography can be an effective means that enables concealed data to be transferred inside of seemingly innocuous carrier files. Knowing what software applications are commonly available and how they work gives forensic investigators a greater probability of detecting, recovering, and then eventually denying access to the data that mischievous individuals and programs are openly concealing. Generally speaking, steganography brings science to the art of hiding data. The purpose of steganography is to convey a secret message inside of a conduit of misrepresentation such that the existence of the message is both hidden and difficult to recover when discovered. Essentially, the information hiding process in a steganographic system starts by identifying a cover medium's redundant bits. The embedding process creates a stego medium by replacing these redundant data bits with data from the hidden message. Even if secret content is not revealed, the existence of it is: modifying the cover medium changes its statistical properties, so attackers can detect the distortions in the resulting stego medium's statistical properties. This paper provides a general methodology for embedding while minimizing an arbitrary additive distortion function in steganography.

Keywords— Distortion; Embedding; Key; Steganography; Watermarking

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