International Journal of Innovative Computing, Information and Control
Volume **7**, Number **7(A)**, July **2011**

ICIC International ©2011 ISSN 1349-4198
pp. 3951–3962

A LOW DISTORTION INFORMATION HIDING METHOD BASED ON (5,3) CODE

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Received February 2010; revised July 2010

Abstract. *Nowadays, Internet users surf the net, send billions of e-mails, and transfer personal and professional data via the Internet daily, often without a second thought. It is the sheer speed and ease of using the Internet that pushes computer technology to constantly evolve. Yet these luxuries may come at a price. Data transferred on the Internet consists of many packets. Anyone with a working knowledge of network operation mechanisms and having the ability to capture packet data can decode it and intercept data. Suffice to say, there is a lack of data privacy on the Internet, and this issue has driven researchers to propose information hiding methods. Steganography, the information hiding method, embeds secret data into a cover image to evade detection and maintain privacy between the sender and receiver. This paper makes use of the property of (5,3) linear code to propose a method of data hiding. The scheme embeds 1 bit of a secret per pixel and the average distortion is about 0.375, with an average PSNR about 52.3904. Under the same embedding capacity ($\leq 512\times 512$ binary bits), our average PSNR value is better than either using the LSB substitution method with an average distortion of 0.5 and an average PSNR of 51.1411 or applying Ternary's embedding method having about 0.4206 and 51.892 as the two respective values.*

Keywords: $(5,3)$ linear code, Distortion, LSB substitution method

1. **Introduction.** Paying your utility bills, making doctors appointments or even submitting an original paper for publication can all be done with a click of a button. When people make these transactions, data is transmitted through the network, much like a standard postal system. The computer cuts down the data into packets and combines the IP of the receiver, the sender, and other necessary information into packets. These packets are finally sent to the receiver through other computers on the network. The IP of the receiver then verifies against the packets and buffers the ones belonging to it. After all the packed are collected, they are then combined. Yet if the receiver's IP differs from the computer's IP, these packets will be routed to other computers until it arrives to the right receiver.

If someone were to record and recover the original data from the transmitting packets, the data would no longer be secure because of lacking data confidentiality on the Internet.