A New SVM-STEG Embedding Model in Steganography

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Hanizan Shaker Hussain ; Fazali Ghazali ; Hafiza A. S. ; Hanif Mohd Ali ; Anbuselvan Sangodiah ; Kante Koli Oumar **All Authors**

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One of the sub-fields in information security is called information hiding and can be applied to protect data and information nowadays. This is a method in where secret-messages are hidden stealthily in an image file. This method has been used in various fields especially in digital image steganography. Most of the techniques proposed to date have various problems i.e., non-random changes will obviously occur especially when the secret message is embedded in an inappropriate area and when the load capacity exceeds the number of bits allowed. This paper proposes a machine learning steganographic method called SVM-Steg model that uses embedding and extracting algorithms by exploiting SVM classification and SVM-Steg embedding to achieve good performance. In addition, the distance of the embedding location is also taken into account so that more pixels can be embedded at more distance locations. The results show a quality cover-image when high peak signal-to-noise ratio (PSNR) values are recorded greater for all types of cover images. In comparison to the other technique, all PSNRs for the proposed technique, SVM-Steg Method achieved 40 or higher. It is not only succeeding in providing a secure embedding position, but also increases the number of secret-bits embedded.

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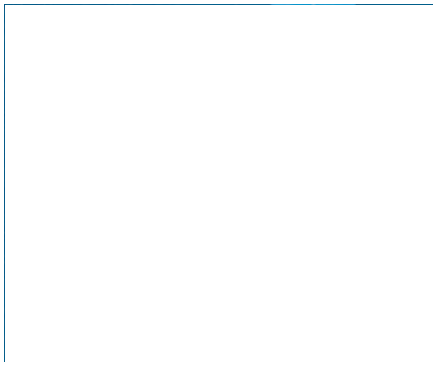

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Hussain, Hanizan Shaker[a] ; Ghazali, Fazali[b] ; Hafiza A.S.[c] ; Ali, Hanif Mohd[b] ; Sangodiah, Anbuselvan[a] ; Oumar, Kante Koli[a]

[a] Quest International University, Faculty of Computing and Engineering, Malaysia

[b] Universiti Islam Antarabangsa Sultan, Abdul Halim mu'Adzam Shah, Kulliyyah of Muamalat & Management Sciences, Malaysia

[c] Universiti Poly-Tech Malaysia, Faculty of Computing and Multimedia, Malaysia

Abstract

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Digital Image Steganography; Information hiding; Machine learning; Secret-messages; Support Vector Machine

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