Abstract

A conventional Secret key Steganography scheme focuses mainly to reduce the distortion when secret information is embedded into the cover image. On the other hand, the transmitted images may be compressed or faces transmitting errors. If such errors occur, the receiver cannot extract the correct information from the stego-image. Furthermore the three main attributes of steganography are capacity, invisibility and Robustness. In the previous models [3, 4] we mainly concentrated on capacity and invisibility but in this method equal importance will be given to robustness. To increase the stochasticity of information hiding we use pixel indicator techniques which are implemented using three methods. Among these the first method enjoins that red channel steers the other two channels and the second method gives us the liberty to select the steering channel which successively increases the robustness of the shrouded message but its limits when MSE is considered. In third method, the steering channel is
selected in a cyclic mode which enhances further the capacity along with security of the
shrouded message as the MSE gets equally distributed. To increase the robustness here we
introduce a factor E which gives us an option to select the position to plant the message to be
concealed. The factor E addresses the bit where the embedding can be started. Once an image
is compressed the LSBs of the covered media will get affected which defiles the concealed
message. The essence of this method rests in the withstanding capability of the carrier media
as the factor E is altered. As the value of E increases the MSE gets stepped up and hence the
imperceptibility of the carrier image gets diluted. This can be heightened by using Optimal Pixel
Adjustment Process (OPAP).

Reference

- Abbas Cheddad, Joan Condell, Kevin Curran, Paul Mc Kevitt, Digital image

- Adnan Gutub, Mahmoud Ankeer, Muhammad Abu-Ghalioun, Abdulrahman Shaheen, and
Aleem Alvi, “Pixel Indicator high capacity Technique for RGB image Based Steganography”,
WoSPA 2008 – 5th IEEE International Workshop on Signal Processing and its Applications,
University of Sharjah, Sharjah, U.A.E. 18 – 20 March 2008
- R.Amirtharajan, Sandeep Kumar Behera, Motamarri Abhilash Swarup, Mohamed
Ashfaaq K and John Bosco Balaguru Rayappan, “ Colour Guided
Colour Image Steganography” Universal Journal of Computer Science and Engineering
Technology 1 (1) (2010), 16-23.
- R.Amirtharajan and Dr. R. John Bosco Balaguru, “Tri-Layer Stego for Enhanced Security
– A Keyless Random Approach” - IEEE Xplore, DOI, 10.1109/IMSAA.2009.5439438.
- R.Amirtharajan, Krishnendra Nathella and J Harish, “Info Hide – A Cluster Cover
- Bruce Schneier, Applied Cryptography Protocols, Algorithm and Source Code in C.
- C.K. Chan, L.M. Chen, Hiding data in images by simple LSB substitution, Pattern
substitution in image hiding by dynamic programming strategy. Pattern Recognition 36 (July),
1583–1595.
- S. Katzenbeisser, F.A.P. Petitcolas, Information Hiding Techniques for Steganography

Index Terms
Computer Science Information Security

Key words
Modified LSB Optimal Pixel Adjustment Process (OPAP) Pixel Indicator(PI)