Universal Deep Network Steganalysis of Color Based on Channel Representation

Mr. Nagesh R[1], SP Vidya Sagar[2], Sanjay M[3], Suhas A[4]

Assistant Professor, Department of Information Science and Engineering[1]

Students, Department of Information Science and Engineering[2,3,4]

S J C Institute of Technology, Chickballapur, India

Abstract: *Up to now, utmost being steganalytic styles are designed for grayscale images, and they aren't suitable for color images that are extensively used in current social networks. To begin with, we divide the input image based on the different embedding spaces of its colors, resulting in three separate channels.. The proposed system includes preprocessing, convolutional, and bracket modules. To save the steganographic vestiges in each color channel, in preprocessing module, we originally separate the input image into three channels according to the corresponding embedding spaces(i.e RGB for spatial steganography and YCbCr for JPEG steganography), and also prize the image residuals with 62 fixed high- pass pollutants, eventually concatenated all abbreviated residuals for posterior analysis analysis rather than adding them together with normal complication like being CNN- grounded steganalyzers. To accelerate the network confluence and effectively reduce the number of parameters, in convolutional module, we precisely design three types of layers with different roadway connections and group complication structures to further learn high- position steganalytic features. In bracket module, we employ a global normal pooling and completely connected subcaste for bracket.*

Keywords: Machine learning, image processing, steganography, CNN

REFERENCES

[1]. M. Yedroudj, F. Comby, and M. Chaumont, "Yedroudj-Net: An efficient CNN for spatial steganalysis," in IEEE International Conference on Acoustics, Speech and Signal Processing, pp. 2092–2096, 2018.

[2]. M. Boroumand, M. Chen, and J. Fridrich, "Deep residual network for steganalysis of digital images," IEEE Transactions on Information Forensics and Security, vol. 14, no. 5, pp. 1181– 1193, 2019.

[3]. J. Huang, J. Ni, L. Wan, and J. Yan, "A customized convolutional neural network with low model complexity for JPEG steganalysis," in ACM Workshop on Information Hiding and Multimedia Security, pp. 198—- 203, 2019.

[4]. R. Zhang, F. Zhu, J. Liu, and G. Liu, "Depth-wise separable convolutions and multi-level pooling for an efficient spatial CNN-based steganalysis," IEEE Transactions on Information Forensics and Security, vol. 15, pp. 1138–1150, 2020.

[5]. X. Qin, B. Li, S. Tan, and J. Zeng, "A novel steganography for spatial color images based on pixel vector cost," IEEE Access, vol. 7, pp. 8834– 8846, 2019.

[6]. Y. Wang, W. Zhang, W. Li, X. Yu, and N. Yu, "Non-additive cost functions for color image steganography based on inter-channel correlations and differences," IEEE Transactions on Information Forensics and Security, vol. 15, pp. 2081–2095, 2020.