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Accurate Convolutional Neural Network for Steganalysis in Spatial Images with Embedded Secret data.

Abstract:



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Advancement in Deep Learning techniques, in recent years, used to steganography detection algorithms have surpassed the approaches of machine learning domain based on traditional two-stage approach that combines feature extraction and classification as one same model known as Convolutional Neural Network (CNN). Various CNN architectures have been proposed to solve the steganalysis problem by improving the detection accuracy for images containing data embedded in them, but the state-of-the-art networks still yield the results that need to be improved. Here we present a network architecture to improve alteration accuracy, in digital images of the spatial domain with better convergence, and model training stability. The availed CNNs consists of a pre-processing stage with Spatial Rich Models (SRM) filter banks and other auxiliary layers to the main convolutional layer for the feature extraction stage, and the binary classification stage includes the use of one fully connected layer with softmax. With our method, the accuracy in is improved from 5% to 13% of the recently built networks with the network stability in training time.

Seminar date:

Friday, 29th July 2022

Time:

10:00-11:00 am

Mode:

Virtual