If you have any questions about the code, please feel free to send emails to:

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The model requires that cover images and their stego images should be paired both in training and testing. Analysis and experiments for the paired learning and testing can be found at the following paper:

Songtao Wu , Shenghua Zhong, and Yan Liu. "Residual convolution network based steganalysis with adaptive content suppression", IEEE International Conference on Multimedia and Expo (ICME), 2017

We acknowledge that paired testing is not a usual setting in image steganalysis. This becomes a limitation for the proposed model. In order to release this constraint, we propose a CNN model with a novel normalization layer for image steganalysis. The model can be found at the following link:

https://github.com/Steganalysis-CNN/CNN-without-BN

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Purpose
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

The purpose of this code is to train a residual network for image steganalysis. The implementation is based on the MatConvNet platform.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Files
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

test_resnet: this is the main function, which can be used to learn a new model to detect a given steganographic algorithm. In our implementation, **cover images and stego images are required to be paired in training and testing.**

cnn_steganalysis_setup_data: the function to determine training samples and testing samples. In our implementation, '1' represents the training sample while '2' represents the testing sample.

res_init: the function implements residual network for image steganalysis.

getBatchFn, getDagNNBatch: the function to read images from specified paths

setup: the function to setup environment for the proposed model

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Folders
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

dependencies: this folder contains basic functions of constructing a CNN model with the MatConvNet platform. It contains two sub-folders, i.e. matconvnet and vlfeat. These files can be downloaded from following links:
vlfeat: http://www.vlfeat.org/
matconvnet: http://www.vlfeat.org/matconvnet/

model: the trained model will be saved in this folder.

utils: the folder contains model training function and some functions for image pre-processing

%%

The paper and the model code will be published online soon.