Structure of the folder:

Neural Network – contains the implementation of CNN: DenseNet, ResNet 18, and GoogLeNet for the classification. These scripts compute confusion matrix for classification, trained neural network, and parameters of each network. Individual CNNs are run via functions: densenet_run.m, resnet_run.m, googlenet_run.m.

RetCam_data_original – contains the example of retinal images from the system *Clarity RetCam 3*: 14 healthy images and 16 ROP plus form images.

RetCam_gold_standard – contains 30 gold standards, which are performed by two experienced ophthalmologic experts.

Segmentation algorithm – contains the source codes for the proposed optimized segmentation algorithm for retinal blood vessels segmentation. To use this algorithm run:

segmentation_algorithm_blood_vessels_run.m

The algorithm requires to set the path to the retinal images, gold standards, and number of random combinations for the optimization of segmentation's steering parameters. The segmentation procedure generates averaged values of evaluation parameters for segmentation, table with optimized parameters, and segmented images in .PNG format.