The program is started by entering the command "main" in the command line Matlaba. This automatically loads 10 images from the attached database. If you want to load images from another database, specify the path of the images as well as their names.

I. File list

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main.m -the first execute function, shows results of noise reduction of TPLSM test images. Main function starts execution of all function from list.It is possible to test TPLSM images from another database, but at least 10 repeat scans are required.

copula\_parametri\_delF.m -determinate value of copula parameters for 1D time series

copula\_threshold.m - determinate 1D time series of background or 1D time series with least signal for images without backgrounds.

low\_rank\_approx.m - low rank approximation

svd\_copula.m - implementintion of SVD-COPULA denoising procedures

test\_value\_m.m - test value of sth for different values of m (default value is m= 60).

Program use default parameters described in manuscript.

II. Test TPLSM images

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The database is publicly available on [1]https://github.com/yinhaoz/denoising-fluorescence/tree/master/denoising.

TEST IMAGE 1 - contains ten TPLSM images from [1]. Denoising results are shown in Supplementary materials.

TEST IMAGE 2 - contains ten TPLSM images from [1]. Denoising results are shown in manuscripts (Fig.11).