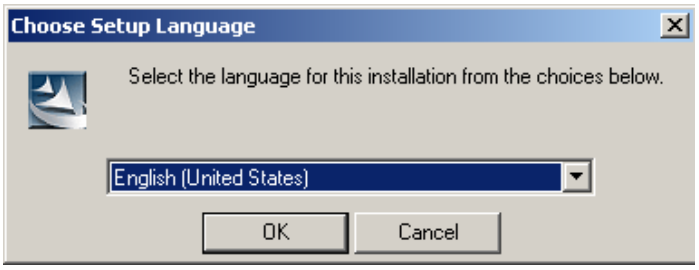
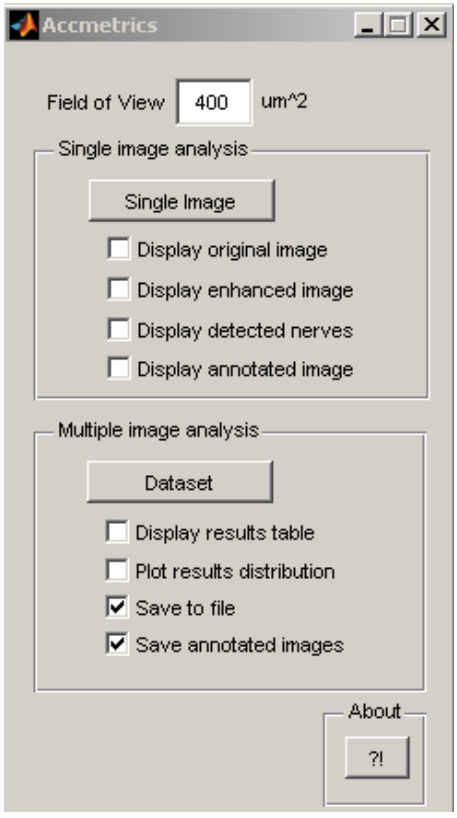
Software Installation Instructions

(Version1.0 for Windows, May, 2012)

1. Copy the file 'AccmetricsV1_32.exe' (for 32 bits system) or 'AccmetricsV1_64.exe' (for 64 bits system) to a new folder in your LOCAL drive, and double click to execute the file. If you're not sure about the system, try the 32 bits version first. The software will unpack itself. 3 files ('MCRInstaller.exe', 'Accmetris.exe', 'readme.txt') and 1 folder ('images') will be extracted to the current folder.
2. Wait until the following setup wizard runs automatically.

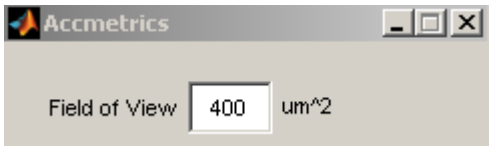


3. Follow the setup wizard until finish.
4. Double click the file 'Accmetrics.exe' (It may take a while). If the following interface pops up, it means you've successfully installed the software.

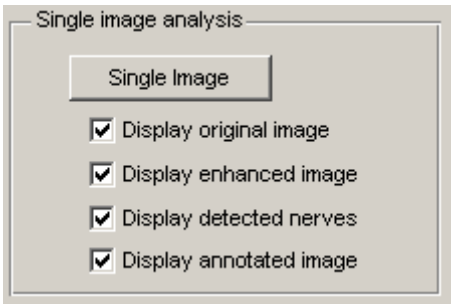


User Instructions

- **Image capture: The current version of the software is optimised for 384 x384 pixels CCM images with the field of view of 400 x 400 µm^2 (resolution: 1.0417 µm). You may change the field of view parameter according to the imaging device. However it is not guaranteed to obtain the best analysis results.**



- **Single image analysis mode: Image analysis for single CCM image**



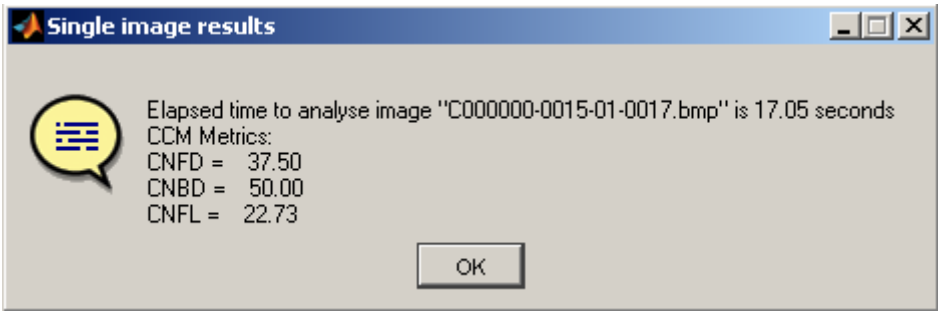
Click the 'Single Image' button to load an image. The software will run the analysis to calculate:

Nerve Fibre Density (NFD: The number of fibres per mm^2)

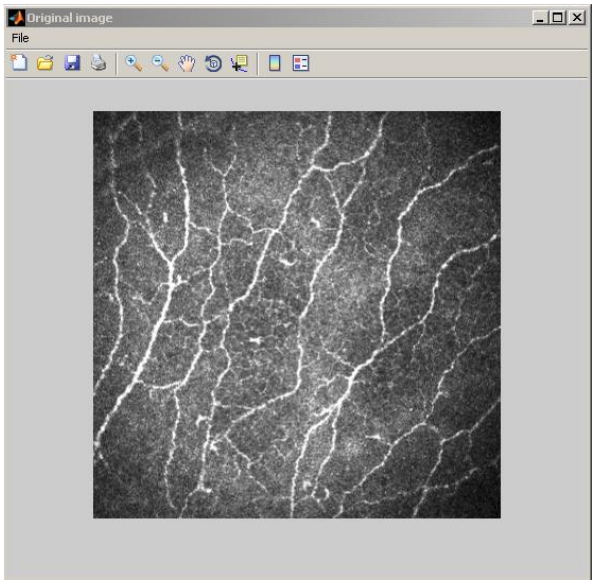
Nerve Branch Density (NBD: The number of branch points per mm^2)

Nerve Fibre Length (NFL: The total length of nerves (mm) per mm^2)

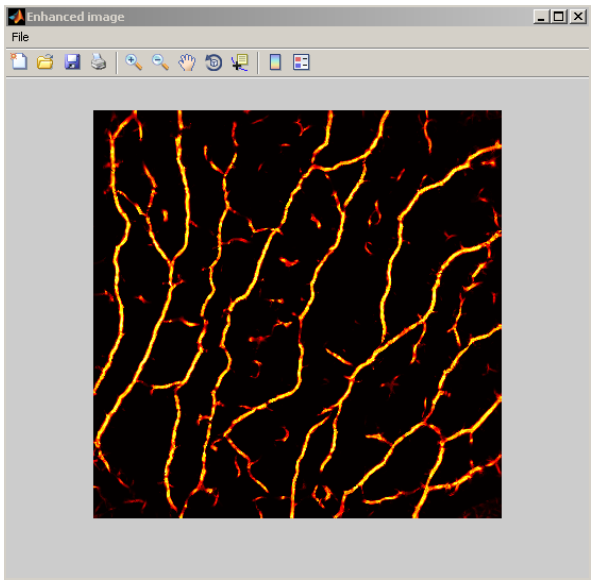
The measurement results are displayed in a dialog box, as shown below. Some example images can be found in the 'images' folder.



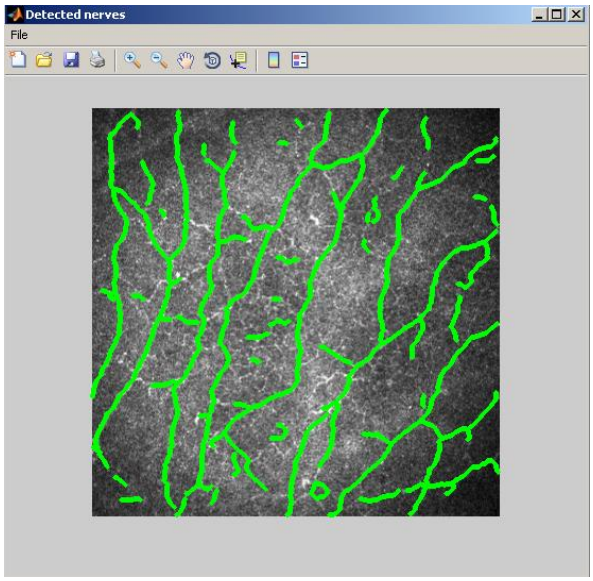
The result images will be displayed if the corresponding 'Display' option is selected, as shown below:



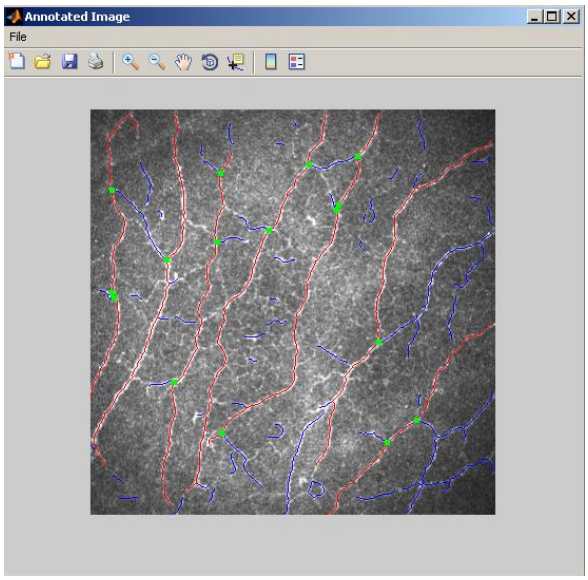
Original Image



Enhanced Image

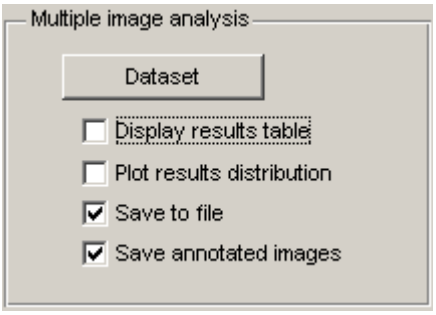


Detected Nerves



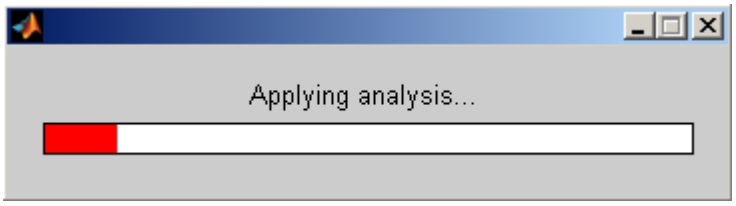
Annotated Image (red: Fibre, Blue: Branch, Green: Branch point)

- **Multiple image analysis mode: Image analysis for a set of images**

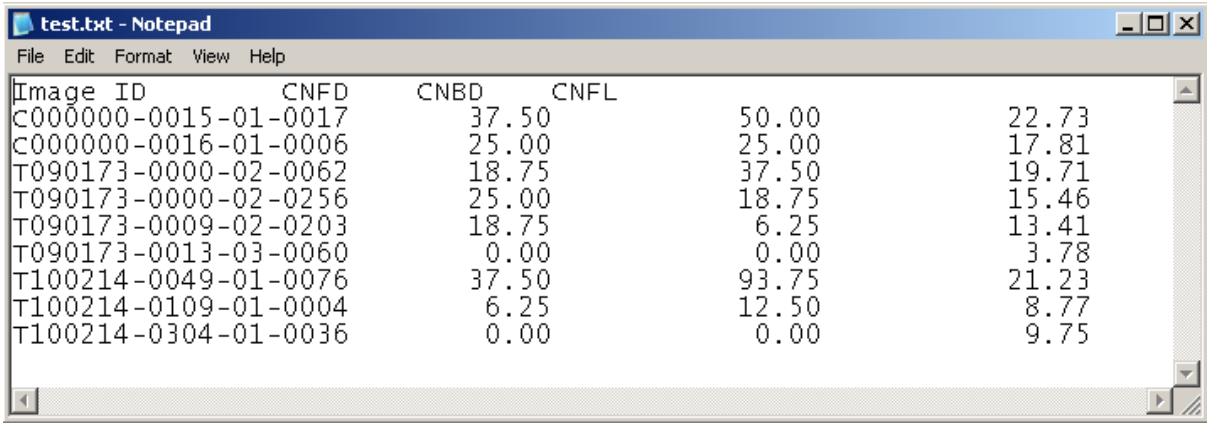


Click 'Dataset' button. Select the image folder. The folder can have sub folders, and the images have to be in either '.jpg' or '.bmp' format. Then another dialog box will pop up asking to select a target folder where the results will be saved to.

A progress bar will pop up to indicate the progress of the calculation.



If the 'Save to file' option is selected, the analysis results will be saved to a ' .txt' file with the name automatically generated using the current folder's name.



If the 'Saved annotated images' option is selected, the annotated images (red: Fibres, blue: Branches and green: Branch points) will be saved to the result folder. The structure of the created folder is the same as the source image folder.

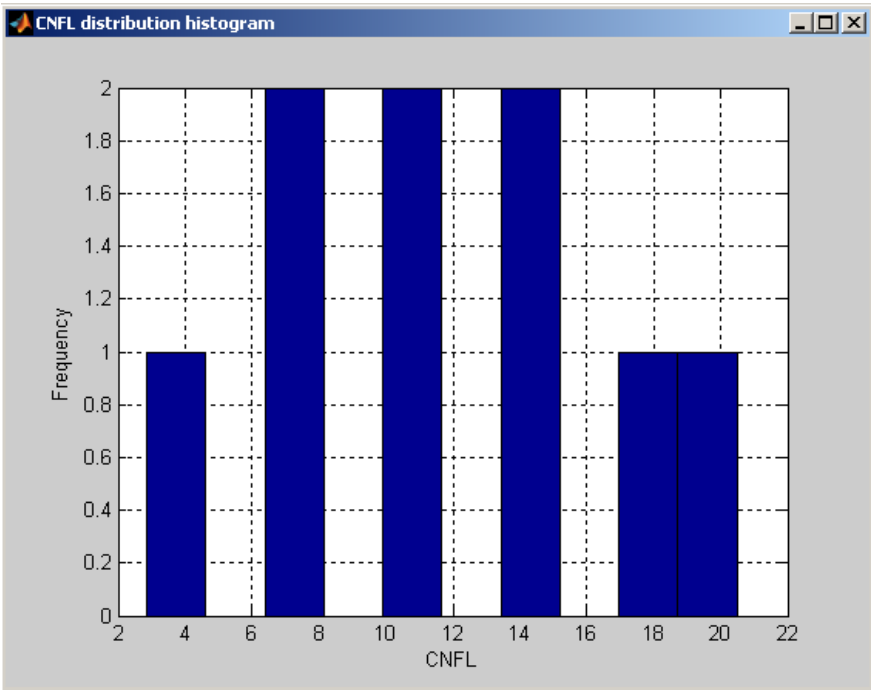
The following function is only available when there's no subfolders in the source image folder (All images are stored in a single folder).

If the 'Display results table' option is selected, the results are also shown in a table.

Results table

	Image ID	CNFD	CNBD	CNFL
1	C000000-0015-01-0017	37.5000	50	22.7279
2	C000000-0016-01-0006	25	25	17.8060
3	T090173-0000-02-0062	18.7500	37.5000	19.7135
4	T090173-0000-02-0256	25	18.7500	15.4622
5	T090173-0009-02-0203	18.7500	6.2500	13.4115
6	T090173-0013-03-0060	0	0	3.7760
7	T100214-0049-01-0076	37.5000	93.7500	21.2305
8	T100214-0109-01-0004	6.2500	12.5000	8.7695
9	T100214-0304-01-0036	0	0	9.7461

If the 'plot results distribution' option is selected, the histograms showing the number of subjects against the measured features are displayed.



For technical details please refer to our publication:

Dabbah M., Graham, J., Petropoulos I., Tavakoli M., Malik R.: Automatic analysis of diabetic peripheral neuropathy using multi-scale quantitative morphology of nerve fibres in corneal confocal microscopy imaging. Medical Image Analysis, Vol. 15(5), pp. 738-47, 2011.