

# 1 ENVIRONMENTAL LIGHT FIELD ANALYSIS - GETTING STARTED

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## 1.1 STEP 1: CONVERT RAW FILES (E.G. .NEF) TO DIGITAL NEGATIVES (.DNG)

Download and install Adobe DNG Converter

(<http://www.adobe.com/products/photoshop/extend.displayTab2.html#downloads>). After opening Adobe DNG Converter, click on Change Preferences and in the window that opens, use the drop-down menu to create a Custom Compatibility. **IMPORTANT: Make sure the 'Uncompressed' box is checked in this custom compatibility mode and the 'Linear (demosaiced)' box is unchecked.** 'Backward Version' can be whatever you like.

## 1.2 STEP 2: ANALYSE IMAGES

You can now open the ELF interface in Matlab by calling the function `elf`. On your first run, you will be asked to identify your main data folder, which is the folder containing all individual project folders (which, in turn, contain your images). Once the interface opens, find your data set and check that the indicator number 1 is green, indicating that DNG files have been found in the folder. To unwarp all images and calculate image statistics, press button 2. This step takes the longest time, up to 2 minutes per image depending on processor power.

## 1.3 STEP 3: MEAN IMAGES

Press button 3 to calculate a mean image for the data set.

## 1.4 STEP 4: SUMMARISE DATA SET AND SAVE RESULTS

After buttons 1, 2 and 3 are green, you are ready to finalise the analysis. Press button 4 to summarise the data set.

## 1.5 ALTERNATIVE: CALCULATE EVERYTHING IN ONE GO

Rather than pressing buttons 2, 3, and 4, press "Full" to calculate everything for one data set in one go (e.g. overnight). This is not faster than calculating steps individually.

## 1.6 CHANGING PARAMETERS

A large number of plotting parameters (font sizes, positioning, turning off certain parts of the plot) can be changed easily in the environment file `'.env'` in the `config` folder. This file will be created automatically the first time you run `elf`, and will be populated with default values. Please maintain the layout of this file carefully, or the program might not be able to read it properly.

If you need to change analysis parameters, you can do this in `elf_para.m`. Most parameters are explained in that file. Depending on which parameters you have changed, you might have to recalculate steps 4, 3, or even 2.

## 1.7 INPUT/OUTPUT FOLDERS

The first time you run ELF, the program will ask you to select two default output folders:

- a main folder (which will include the output ELF plots as pdfs, Excel files with the results, and the mean images as high-resolution tifs)
- a public folder (which will just include low-resolution jpgs of the results, and can therefore more easily be shared, e.g. via dropbox).