Title

Author 1 name, *email address, student id, educational program*
and Author 2 name, *email address, student id, educational program*

Abstract—**Add a short abstract here containing at most 100 words. Abstracts do not contain symbols, special characters, math, or references. Describe the context shortly, and summarize the research question and the main items from the discussion.**

Keywords—*four key words in alphabetical order, separated by commas.*

I. INTRODUCTION

THE introduction contains (1) a background, (2) the definition of the problem that is addressed possibly with a research question and subquestions, (3) a short outline of the report.

Note 1: the problem is **not** how to create a Matlab function. The definition of the problem should be at a much higher level of abstraction.

Note 2: The introduction should be readable for a less technically skilled audience, e.g. a clinician, or a manager. Therefore, the introduction does not contain symbols, special characters, or math.

II. METHODS AND MATERIALS

A. Materials

A short inventory of what has been used.

B. Methods

1) Analysis: Start with defining the overview of the problem in a more mathematical context. What is the input? What is the desired output? (Introduce mathematical symbols for the input and output variables). What is in rough steps the strategy to get the output from the input?

Next, define the subtasks in more detail. For each subtask, introduce variables whenever needed, and set-up the mathematical relations (equations) between these variables, possibly combined with pseudo code. Do **no**t use Matlab code. Describe your algorithm such that the principle of operation becomes clear. For that, use mathematical style pseudo code. See: https://en.wikipedia.org/wiki/Pseudocode and pseudo-code examples provided in https://en.wikipedia.org/wiki/Category:Articles_with_example _pseudocode. The only place in the report that contains Matlab code is the appendix (you should add your listing as an annex).

2) Performance evaluation: For a performance evaluation, you often need to set-up an experiment. Describe the (protocol of the) experiment. Describe how the outcome of the experiment will be processed. Often, you need reference values, i.e. a gold standard, or a ground truth. Describe how this is achieved. If the processing is done statistically, mention the statistical test or statistical inference method.

III. RESULTS

Here, you give the results of what is described in Section II: tables, images and/or graphs. The accompanying text of these tables, images and/or graphs clarifies how they are related to the methods described in Section II.

If you have any remarkable observations, mention and describe them here, but without an interpretation, explanation, or meaning. Do not introduce new methods in this section. And do not give an interpretation or a judgement of these results.

IV. DISCUSSION

Give an interpretation and judgement of the results. If you had any remarkable observations, discuss them here to give them meaning (interpretation, explanation, implication).

Describe limitations of the study. If applicable, compare your results with results from literature. If applicable, provide recommendations for further work.

V. CONCLUSION

A conclusion section is not required. Although a conclusion may review the main points of the paper, do not replicate the abstract as the conclusion. A conclusion might elaborate on the importance of the work, or suggest applications. Describe the overall implication of the results to the original problem statement (or research questions).

VI. MATH

If you are using Word, use either the Microsoft Equation Editor or the MathType add-on (http://www.mathtype.com) for equations in your paper.

Number equations consecutively with equation numbers in parentheses flush with the right margin, as in (**??**). Punctuate equations when they are part of a sentence, as in

$$f_n = \sum_{m=0}^{N-1} F_m exp(2\pi\mathbf{j}\frac{nm}{N}). \tag{1}$$

Be sure that the symbols in your equation have been defined before the equation appears or immediately following. Italicize symbols (T might refer to temperature, but T is the unit tesla). Refer to (1), not eq. (1) or equation (1), except at the beginning of a sentence: Equation (1) is ... .

TABLE I: An Example of a Table

One	Two
Three	Four

VII. SOME COMMON MISTAKES

The word data is plural, not singular. The word alternatively is preferred to the word alternately (unless you really mean something that alternates). Use the word whereas instead of while (unless you are referring to simultaneous events). Be aware of the different meanings of the homophones affect (usually a verb) and effect (usually a noun), complement and compliment, discreet and discrete, principal (e.g., principal investigator) and principle (e.g., principle of measurement). Do not confuse imply and infer. Prefixes such as non, sub, micro, multi, and ultra are not independent words; they should be joined to the words they modify, usually without a hyphen. There is no period after the et in the Latin abbreviation et al. (it is also italicized). The abbreviation i.e., means that is, and the abbreviation e.g., means for example (these abbreviations are not italicized).

VIII. GUIDELINES FOR GRAPHS AND TABLES

A. Graphs and Images

Below each figure (graph or image) there must be a caption with a figure number and a figure title. See Fig 1. Figure titles should be legible, approximately 8 to 10 point type. Each figure should be referenced in the text. Each axis of a graph should have a label. Use words rather than symbols. As an example, write the quantity Wavelength, or Wavelength λ, not just λ. Put units in parentheses. Do not label axes only with units. As in Fig. **??**, for example, write Wavelength (nm), not just (nm).

B. Tables

Tables should have a table caption on top. See Table **??**. Tables should be numbered with Roman Numerals (I, II, III, IV, and so on). Tables should also always be referenced in the text.

C. Videos

Videos should be uploaded as separate files. The preferred video format is mp4. Dont make the video files unnecessarily large. 20 Mbytes is acceptable, but 200 Mbyte is not. Appendix A contains a Matlab script that you can use to resize the frame size of a video. The parameter *quality* controls the amount of compression. Sometimes it is also useful to skip frames. For instance, only write the odd frames to the output video.

APPENDIX A
MATLAB SCRIPT FOR RESIZING A VIDEO

```
%% convert a video
clear variables
close all
inputname = 'input_name.mp4';
outputname = 'output_name.mp4';
profile = 'MPEG-4';
```
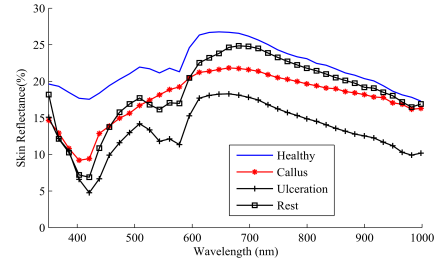

Fig. 1: Examples of spectrum from different classes

```
framerate = 25;
quality = 75;
resize = 1; % resizing needed?
width = 640; % if so, this the new width
height = 480; % and this is the new height
crop = 0; % cropping needed?
croprect = [ 142 36 563 672];
obj = VideoReader(inputname);
nFrames = obj.NumberOfFrames;
wobj = VideoWriter(outputname,profile);
wobj.FrameRate = framerate;
wobj.Quality = quality;
open(wobj);
% Read and write one frame at a time.
hwait = waitbar(0);
k = 1;
while hasFrame(obj)
im = readframe(obj);
if crop % crop if wanted
im = imcrop(im,croprect);
end if resize % resize if wanted
im = imresize(im,[height width]);
end writeVideo(wobj,im);
if mod(k,10)==1, waitbar(k/nFrames,hwait); end
k = k+1;
end
delete(hwait);
close(wobj)
```

APPENDIX B
REFERENCES

In text, refer simply to the reference number. Do not use Ref. or reference except at the beginning of a sentence: Reference [3] shows ... .

REFERENCES

[1] H. Kopka and P. W. Daly, *A Guide to LaTeX*, 3rd ed. Harlow, England: Addison-Wesley, 1999.