

## ***Interactive comment on “Automatic segmentation and classification of seven-segment display digits on auroral images” by T. Savolainen et al.***

**T. Savolainen et al.**

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We thank the referee for the comments and bringing up the issues with the structure of the presentation. In response to the specific comments the following changes have been implemented:

Comment: Page 3, Line 19: "intensities very on all observable time scales, as can be seen from figure 7." To my understanding figure 7 does not show any time variations, but variations across the image (spatial). Response: The intensities vary on all observable time scales was initially used to refer to the variation of the total intensity between images A, B and C. We removed "of all observable time scales", since it is a bit misleading here.

Comment: Page 4, Line 9-12: Converting the image from RGB space to CIE space

is a specific step, and not part of the problem description. Response: We moved the specific step of color conversion to phase I.

Comment: Page 4, Line 1-2: The reference to the flow chart seems out of place and would better fit in the Problem description section. Response: We moved reference to flow chart to the end of problem description

Comment: Page 4, equation at the bottom of the page: This equation describes specific criteria which should be part of the analysis section where the three phase process is described in detail. Response: We removed the specific criteria from the problem description, it already exists in the analysis section

Comment: Page 5, Previous work: Shouldn't this be part of the Introduction? Response: We merged the previous work section in to the introduction and removed repeated information.

Comment: Page 6, Line 2-4: Should be part of the data description. Response: moved "This is important since in some of the images extracted from the digitised films the clock display is not visible at all, for example the camera mirror and the display may be covered in snow or saturated by the light of the full moon." to data description

Comment: Line 5: Starting to read the description of Phase II it comes as a surprise to read the summary of Phase I first. This sentence should be removed. Response: Removed duplicate information "Phase I estimates the location of the display, without considering its size."

Comment: Page 8, Line 11: Again, this should start with what this Phase is about. Response: Removed duplicate information "Each digit is scaled to  $16 \times 24$  pixels in steps 8 and 9 of phase II, which corresponds to a feature vector with 384 dimensions per digit."

Comment: Page 10, Line 2: "... seems to capture most of the useful data." Three lines before it is stated that one of the reasons for rejected images is bright aurora.

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Given the purpose of the dataset maybe one could possibly elaborate some more here. Response: modified the sentence to "The algorithm seems to capture most of the data that has human readable numbers. For assessing the number of images that have auroral events and were rejected a separate study with auroral event detection would be needed."

Please see the attached file where the old text to be removed is marked with blue and the new text to be added is marked with red.

Please also note the supplement to this comment:

<http://www.geosci-instrum-method-data-syst-discuss.net/gi-2015-28/gi-2015-28-AC2-supplement.pdf>

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Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., doi:10.5194/gi-2015-28, 2016.

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