

Geosci. Instrum. Method. Data Syst. Discuss., referee comment RC1  
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## Comment on gi-2021-32

Anonymous Referee #1

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Referee comment on "GeoAI: a review of artificial intelligence approaches for the interpretation of complex geomatics data" by Roberto Pierdicca and Marina Paolanti, Geosci. Instrum. Method. Data Syst. Discuss., <https://doi.org/10.5194/gi-2021-32-RC1>, 2022

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This paper presents an interesting review on the application of artificial intelligence AI algorithms (Machine learning ML and deep learning DL in particular) for processing and analyzing geomatics data. The authors considered in their review only the papers published between 2016 and 2021.

Since the authors reviewed on ML and DL, I think that a brief introduction of these tools and especially the difference between them, will help the readers, that are not familiar to work with, to better understand why there is an increasing demand to use AI.

I appreciated the way the authors took to describe the motivations of the work. But, I think that the first question that we should ask is : Why researchers are increasingly interested to DL. Is it because of data complexity only? Efficacy or simplicity of these tools to implement?

On what basis you have selected the "fundamental" sources of Geomatic data?

In section 2.2.2, the authors cited the use of InfraRed Thermography IRT. First, please correct Thermography not termography. You cited methods like Mask R-CNN, MLP or others. I was wondering why there is not the YOLO algorithm, it is one of the most used in object detection and segmentation in visual and infrared images. Besides, I would like to draw your attention that other researchers used image fusion to image preprocessing as a data enhancement method by fusing visible and infrared images. I raised these remarks since you have compared, in Fig 8, the percentage of papers that used geomatic data with AI and you have concluded in line 540 that IRT data is lower than other types of data.

Please provide more accurate description of the improvements to the state-of-the-art knowledge.

I have other general remarks:

- Please choose between American English or British English --> Analysing and analyzing for example

- The paper is not well revised. There are some grammatical and form errors, ex. line 175, 540... Also; please correct the legend of Fig. 5