

Interactive comment on “CobWeb 1.0: Machine Learning Tool Box for Tomographic Imaging” by Swarup Chauhan et al.

Anonymous Referee #1

Received and published: 17 April 2019

Manuscript GMD-2018-335 presents a new collection of image processing and analyses tools for tomographic 3-D images. As the title suggests, the implementation of machine learning tools for image segmentation is in the focus of the manuscript. It is also claimed that the presented imaging software would be particularly suited for identifying representative elementary volumes.

The connection of this paper to models is only weak, in form of the REV detection. However, the manuscript does not elaborate on how REVs are identified. It simply states that "voxel sizes around 480^3 suited best for... ", without explaining how this conclusion was reached.

The presented software appears to be a promising piece of work, but as the authors write themselves, it still has limited capabilities. The maybe most innovative part is

C1

implementation of machine learning routines for segmentation, albeit this in itself is not a scientific novelty. The manuscript is moreover vague when it comes to describing how the different machine learning options are implemented (with exception of the K-means clustering). It is neither explained how the cross-validation option function.

The manuscript is written in adequate English. Its structure could be improved (e.g. the description of the workings of the filters do not belong in the materials and methods). At several points I found the manuscript rather inconcise. It is e.g. not explained whether the filters and segmentation approaches work in 3-D or only in 2-D. Or like at p9L19: what choice of the cluster centers influence the performance of the K-means algorithm? Its initial location? The number of clusters?

In summary, this manuscript presents a promising software tool for tomographic image analyses. But I do not think the manuscript fits within the scope of GMD, nor do I think that the manuscript is developed enough to reward revisions with another round of reviews.

I therefore recommend a release of this manuscript but encourage the authors to submit a better developed version of their paper to a better suited journal.

Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2018-335>, 2019.

C2