

Geosci. Model Dev. Discuss., editor comment EC1
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Comment on gmd-2021-165

David Topping (Editor)

Editor comment on "GAN–argcPredNet v1.0: a generative adversarial model for radar echo extrapolation based on convolutional recurrent units" by Kun Zheng et al., Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2021-165-EC1>, 2021

Dear authors. Thank you for your submission. Clearly this is a timely area of work and the proposed developments fit within the broad readership of the journal. I request you respond to the following minor comments before publication.

General comments:

The multi model image problem is really a core component. Is it possible to provide a visualisation of this, or schematic, for the readers in the introduction?

How did you arrive at the number of convolutional layers? Did you go through a period of architecture optimisation? e.g. using hypertune?

What is the role of data augmentation, if any, on the model performance? Is it possible to use synthetic data?

The formatting of the equations seems to be wrong in places. Please check this. e.g. in equation 1, the subscripts under argmax should be smaller than the main variables.

Minor comments:

Abstract - 'The model composed..' should read the 'model is composed of the argcPredNet..' . In the proceeding line 'In generator, a gate control data memory and output are designed in the rgLSTM prediction unit of the generator, thereby reducing the loss of spatiotemporal information' should read (i guess), 'In the generator, a gate controlling the memory and out are designed in the rgLSTM component..'??

There are multiple instances of e.g. 'In discriminator..' please change these to 'In the..' and check throughout the document.

Page 2, line 42: 'which prefers to model unimodal distribution.' should read 'which is better suited to a unimodal distribution'?

50 2 Relate work - this should be 'Related work'.

Page , line 57: please define GRU for the readers.

Page 3 '3.1 Model overview' Please change this to include the name of your model. Please also provide a few sentences telling the reader what each following section is describing.

Page 3 line 86. 'WGAN-gp' please define what this is. expand the acronym for each first instance. Do bare in mind that readers should not need to know implicitly what a model acronym means.

Page 3 line 91: 'Finally, use Adam to optimize the adversarial loss and then update the parameters of the discriminator, optimize the loss function of the' should read, Finally, we use the Adam optimiser for training..'

I think your paper would really benefit from a table listing all model components that you bring together and a general algorithm workflow.

Please add clarify in the figure 1 caption this is the new model [and name it]