**Reviewer’s report**

**Title:** Recursive neural networks in hospital bed occupancy forecasting

**Version:** 0 **Date:** 23 Jul 2018

**Reviewer:** Cristiano André Da Costa

**Reviewer’s report:**

The article is well written and organized. The topic is interesting and has a good contribution to the scientific community. Following, I list some comments that could improve the final version of the article:

- In introduction, you could also consider the following related work:
  http://doi.org/10.1097/CIN.0000000000000421

- Method is well described. In data curation you could give some examples of removed / missing data. It is not clear how you chose the training and evaluation data.

- A ROC curve wouldn’t also be a good evaluation for the model?

- In Figure 2, it is not clear the use of the colors, however explained in the Figure.

- I think there is too much tables in the results section. Maybe, as a suggestion. reduce to 1 or 2 and use 1 or 2 additional graphs (for instance, for yearly predictions). The only graph used is for a 60 days prediction example.

- Discussion is good and compares with some related works. I miss a paragraph or two commenting on limitations.

- You could better highlight the scientific contribution in conclusion.

- There is no 2018 reference. Furthermore, no reference from articles of BMC Medical Informatics and Decision Making.

- Maybe as a future work, you could consider other supporting data as variables for the method. For instance, excessive temperatures, storms, traffic jams, etc. Why NARX was chosen?

- pg.10, line 8: extra ")

**Are the methods appropriate and well described?**

If not, please specify what is required in your comments to the authors.

Yes
Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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