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| **IIUM ENGINEEERING JOURNAL** **Guidelines for Authors to respond to Editor's and reviewers’ comments.** |
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| **Manuscript title** | **Air PollutIon Index Prediction using multiple neural networks** |
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| **Manuscript #** | **684** |
| The authors express their gratitude to the editors and reviewers for their time and patience to review the manuscript. We hope the modifications listed below, will result in a manuscript suitable for publication in the IIUM Engineering Journal. We look forward to your response. |
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| **Editor Comments** | **Author's Response** |
| Please revise your manuscript according to the comments from reviewers.Please use the 'Reply to reviewers' form and upload it together with therevised version of the manuscript.  | We are thankful to the reviewers for their comments and suggestions. We have carefully considered and addressed them with amendments and/or additions in the revised manuscript. Each of the reviewers’ comments and our response/action taken to it are given below. Main changes made in the revised manuscript are shown in red.  |
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| **Comments of reviewer # 1 (A)** | **Author's Response** |
| Provide sample data of the six inputs one output.  |  As per reviewer’s suggestion, raw sample data for the input and output was attached as Figure 3 as shown in page 3 for year 2006 ( 365 samples) |
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| Elaborate on the importance of R2 and its relative value.  |  As per reviewer’s suggestion, new statement was added to the text about the important of R2 and MSE as shown in page 4“The performances of the actual and predicted model are based on the MSE and coefficient determination, *R*2. The advantages of using the MSE include that it is can be calculated easily, that it penalizes large errors in each observation. Therefore the average sum square error in each sample observation is able to determine the quality of the prediction of the model. In the other hand, the *R*2 provides the inconsistency measure of the data reproduced or predicted and the fitness of the model to capture the actual process. The higher the values of *R*2 or closest to 1 and the smallest the MSE or closest to zero the better is model.” |
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| Check the English, some grammatical errors have to be corrected.  | As per reviewer’s suggestion, the manuscript is duly revised and corrected for the English style and grammatical errors. For example, ‘However finally for this study…..’ is replaced by ‘However for this study…..’ (see Page 3). The phrase (…applied on short-term and long-termm bases.” is replaced by ‘…applied on a short-term and long-term basis’ (page 2). |
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|  Compare your results with similar from literature. | As per reviewer’s suggestion, a comparative study of the proposed modelling techniques against other API modelling is presented as follows :2 references have been added for the comparison of API modelling with additional statement1. A. Azid, H. Juahir, M. T. Latif, S. Mohd Zain, M. R. Osman, “Feed-Forward artificial neural network model for Air Pollutant Index prediction in the southern region of Peninsular Malaysia,” *Journal of Environmental Protection*, Vol. 4, 1-10,2003.
2. A. Azid, H. Juahir, M. E.Toriman, M.K.A. Kamarudin, A.S. Mohd Saudi,C.N. Che Hasnam, N. A.Abdul Aziz, F. Zaman, M. T.Latif, S. F. Mohamed Zainuddin, M.R.Osman, M. Yamin, “Prediction of the Level of Air Pollution Using Principal Component Analysis and Artificial Neural Network Techniques: a Case Study in Malaysia,” Water Air Soil Pollut. Vol.225, 2063-2077, 2014.

“As for comparison, Azid *et al.* [21, 22] did carry out the modelling of API for the Southern region of Malaysia with 2 different set of data containing 202,050 and 232,505 observations respectively. In [21] the input was reduced to 10 from 12 possible inputs with *R2* and RMSE of 0.724 and 7.562 for unseen validation data respectively. In the other and, in [22], the input was reduced to 5 from possible 8 with the *R2* and RMSE of 0.618 and 10.017 for unseen data respectively. Therefore the MNN did perform better than the other API modelling for Malaysia as shown in Table 2 with the R2 and RMSE of 0.8200 and 0.160 for unseen validation data respectively. This performance was obtained with fewer numbers of sample data (1388 observation) as compare in [21] and [22].” |
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| **Comments of reviewer #2(C)** | **Author's Response** |
| Each figure should be located after the text such as Figure 1, 4, 6, 7.  | As per reviewer’s suggestion, Figure 1, 4 6 and 7 was place after the text. ( new Figure number in the revised document)Figure 1,5,7 and 8) as shown in page 2,5 and 6 respectively |
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| 1. For eq (1) the symbol y (t) mentioned in the text is in smaller font sizethan the text.
2. some of Journal no or issue no mentioned in references are 2numbers such as, issue no in Ref. 6, 13, and 17.
3. the vol no. in ref. 10is 463-464????
 | As per reviewer’s suggestion;1. Change the size of y(t) similar to the size of the text
2. For reference no 6, based on the science direct, the correct citation is “M. Amodio et al. / Atmospheric Research 98 (2010) 207–218”, change the format based on the citation from the science direct.

For reference no 13, based on the science direct, the correct citation is “Atmospheric Environment Vol. 32, No. 14/15, pp. 2627—2636, 1998” therefore the reference no. 13 remain the same.For reference no.17, based on the science direct, the correct citation is “H. Kerem Cigizoglu, O¨ 222. Kisi / Journal of Hydrology 317 (2006) 221–238”, therefore change the format based on the citation from the science direct. 1. For reference no 10, based on the science direct, the correct citation is “G. de Gennaro et al. / Science of the Total Environment 463–464 (2013) 875–883” therefore the reference no. 10 remain the same.
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| PM 10 is measured in mg/L not micrometer.  | Change to mg/L as a concentration of PM10  |
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| Subscript:  the n is already mentioned with NOMENCLATURE.  | Remove the n from the subscript  |
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| Figure 6, should be named as (a) and (b) to be more clear to the reader. | New Figure number for Figure 6.Figure 7 (a) and (b) was added to the paper. |
| More explanation about figure 7 is better  |  New Figure number for Figure 7.Figure 8. |
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| We thank you again for your time and efforts to help us improve the manuscript. |