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Drinking Water
Engineering and Science
Discussions

Interactive comment on "Hybridisation of brownboost classifier and glowworm swarm based optimal sensor placement for water leakage detection" *by* Rejeesh Rayaroth and Sivaradje Gopalakrishnan

Rejeesh Rayaroth and Sivaradje Gopalakrishnan

rejeeshrayaroth@pec.edu

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1.The abstract is too long, and should not focus too much on the description of the methodology

Corrections are addressed in abstract

2. Shorten introduction and make the description of the various methodologies more condensed at analyse the short-comings at once, so that it gives a good reason for the adopted approach.

Introduction is shortened and various methodologies are condensed in section 1.

3. Introduction and "related work" should be combined, because in the introduction related work should already be cited to set the boundaries for the proposed approach.

Introduction and related work should be combined in section 1.

4.Mention at the end of the introduction what is the reason to develop the proposed approach (and what is new).

Corrections are addressed in section 1.

5.Avoid in the methodology section using s "code" and too detailed descriptions in the main text (preferably in supplementary data/information), but concentrate more on how the calibration/validations are done.

Corrections are addressed throughout the paper.

6. Are real pressure data used or is it all simulated data, e.g.? –

Simulated data is used to implement the proposed work. Eg. EBBC-GWO method is used for District Metered Areas (DMA) in Barcelona water distribution network. Total extent of DMA is 17.4 km of pipelines with 883 nodes, 927 pipes which distributes water to 639 consumers. The pipe diameters varied from 70 to 400 mm. The pressure at night flow changes between 29.31m and 43.46 m. Flow and pressure are identified at inflow and outflow point. DMA includes 311 nodes with demand (RM), 60l nodes without demand (EC), 48 hydrant nodes without demand (HI type), 14 dummy valve nodes without demand (VT) and 448 dummy nodes without demand (XX type). The water pipeline has two inflow inputs (i.e., reservoir nodes). Leak detection is based on the damage (leaks) in different locations of piping network includes the liquid outflow at leak location that changes the flow features (pressure heads, flow rates, acoustics signals, etc.) at monitoring locations of piping network. It is imagined that leaks occur at XX type nodes in which 448 potential leaks are detected. Leaks occur at any node or pipe.

7. In the results section new definitions should be avoided (should be introduced in Methodology section).

Definitions are avoided in result section and it is introduced in section 2.2.1, 2.2.2.

8. Also avoid repetition and figures and tables with same information. It is suggested to present one large table with all data in it and then discuss the differences of the three methods at once.

Corrections are addressed in section 4.1, 4.2,4.3,4.4.

9. It is not clear from the results how the localization of the sensors is determined - It should be good to discuss the implementation of the proposed approach in practice.

Corrections are addressed in section 4.4.

10. Is it for example needed to run the EPANET model continuously to detect anomalies? –

Yes, EPANET model is continuously needed to run for detecting anomalies.

11. Check tenses: past tense when it is the author's work, present tense when it is general knowledge - Check abbreviations: introduce once and then always use abbreviation (not introducing again) – Check language in general.

Corrections are addressed throughout the paper.

Specific comments:

1.Page 1, Line 26, unclear what is meant

Corrections are addressed page 1, section 1.

2. Page 1, line 27 give references -

Corrections are addressed page 1, section 1.

3. Page 1, line 28 evade=avoid

Corrections are addressed in page 1.

4. Page 2, line 1 "..in (kang et al: : :.) that.." should be something like "Kang et al. (2018) found: : :" check rest of the document too.

Corrections are addressed in page 2 and throughout the paper

6.Page 2, line 33 introduce abbreviation –

Abbreviation is already introduced in page 1.

7. Page 3, line 5-18, is more for the methodology section

Corrections are addressed in section 1.

8. Page 4, line 26, give references (not always the case: : :) –

Corrections are addressed in section 2.

9. Page 9, line 4-5 this statement should be proven by the results (and is not adequate here).

Corrections are addressed in section 2.2.1

10. Page 14, Figure 4 is not readable –

Figure 4 is simulation diagram which is enlarged.

11. Page 15, line 2 Explain better (in methodology section) what is meant by "classified"

Corrections are addressed in section 2.2.1

12. Page 24, line 29-31 Not clear what is meant: : :

Corrections are addressed

13. Only less false positive or also better on other 3 performance indicators?

No, all the indicators provide better performance while detecting water leakage.

14. What is meant by “experimental evaluation”? What experiments are executed?

Corrections are addressed in section 5.

Please also note the supplement to this comment:
https://www.drink-water-eng-sci-discuss.net/dwes-2018-19/dwes-2018-19-AC1-supplement.pdf

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