Review of: "New adaptative numerical algorithm for solving partial integro-differential equations"

Brahim Benhammouda[1]

1 Higher Colleges of Technology

Comments:

1. Carefully review the entire manuscript for English language and grammatical errors to enhance its readability.

1. Show the novelty in the contributions of the paper. What distinguishes this work from existing literature?

2. Most references are old. Include more recent references to strengthen the literature review and show awareness of the latest developments in the field.

3. Include a detailed algorithm for the proposed method so that readers can replicate the results.

4. Give more discussion about the numerical results.

6. Provide a more in-depth discussion on the resulting algebraic systems.

7. Clearly state the numerical method used to solve the linear algebraic system.

8. In Table 3, include information on computing time along with the accuracy comparison.

9. The proposed method is supposed to solve nonlinear problems; however, all examples are linear except one. Use a wider range of examples, including nonlinearities like $1/(1+u^2)$ and $\cos(u)$, to showcase the method's applicability to different types of problems.

10. At the end of the introduction, briefly state the content of each section to provide readers with an overview of the paper's structure.

Other comments:

1. Abstract:

   - Check and correct spelling errors such as "acurrate" to "accurate" and "approach" to "approach." Also replace the word "matrix" by "matrices"

2. Page 3, section 3, first line:

   - Review and correct any errors in the first line of section 3.

3. Page 5, bottom:

   - Correct errors such as "noeuds" to "nodes" and "oppeared" to "appeared."

4. Page 7, top of the page, first sentence:

   ○ Correct the word "mutiple" to "multiple".

5. Page 9, last line of proof of Theorem 3:

   ○ Review and correct the last line of the proof of Theorem 3.

6. Page 9, section 5, first sentence:

   ○ Replace "to shown" with "to show".

7. Consistency:

   ○ Use the same notation for names of functions K_1 and K_2 consistently throughout the paper.

8. Page 6, line below equation (24):

   ○ Replace "boundary conditions given in (6)" with "boundary conditions given in (2)."

9. Page 8, Theorem 2:

   ○ Include equation numbers in brackets for Theorem 2 and consistently throughout the paper.

10. Theorem 3:

   ○ Use absolute values for Lambdas in Theorem 3. Check the reference to Lemma31 in the proof.

11. Figure 2 and figure 3:

   ○ Ensure that graphs of exact and numerical solutions are plotted using similar frames. Also check the graphs.

12. Example 2:

   ○ Provide a reference for Example 2 if available.

   13. Example 3:

      o Provide a reference for Example 3 if available. Also check the expression of $g(x,t)$