Review Form 3

Journal Name:	**Asian Journal of Research in Computer Science**
Manuscript Number:	**Ms_AJRCOS_124677**
Title of the Manuscript:	**Electromagnetic Radiation for Nonlinear Dynamics of Two-Neuron Based Memristive Hopfield Neural Network with Synaptic Crosstalk**
Type of the Article	**Research Paper**

PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	This manuscript is important to the scientific community as it explores the novel integration of electromagnetic radiation (EMR) in controlling chaotic dynamics within a Hopfield neural network (HNN). The research opens avenues for applying external stimuli, such as EMR, to neuromorphic systems, which could significantly impact fields like brain-machine interfaces and artificial intelligence. I appreciate the manuscript's mathematical rigor and the potential practical applications it hints at, especially in chaos control. However, the presentation could be clearer, and a deeper exploration of experimental validation would strengthen its impact.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	The current title, *"Electromagnetic Radiation for Nonlinear Dynamics of Two-Neuron Based Memristive Hopfield Neural Network with Synaptic Crosstalk,"* is descriptive but somewhat lengthy and could be more concise. An alternative title that maintains clarity while shortening the phrasing could be: **"Chaotic Dynamics of Memristive Hopfield Neural Networks Under Electromagnetic Radiation and Synaptic Crosstalk."**	

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Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The abstract provides a good overview of the study but could benefit from improved clarity and organization. Currently, it introduces too many complex terms without enough explanation, making it difficult to follow. Here are some suggestions: **Additions:** 1. **Objective Statement**: The abstract would be clearer if it explicitly stated the research objective, such as: *"This paper investigates how electromagnetic radiation (EMR) influences chaotic dynamics in a two-neuron-based memristive Hopfield neural network (HNN) with synaptic crosstalk."* 2. **Significance of the Study**: Include a brief mention of the study's potential applications, such as in neuromorphic systems, artificial intelligence, or brain modeling. 3. **Key Results**: The abstract should highlight more specific findings, such as the results of Lyapunov analysis and circuit simulations, to give the reader a sense of the study's outcomes. **Deletions:** • **Overly Technical Language**: The abstract currently introduces technical terms like *"synapse interference," "hyperbolic memristor,"* and *"chaos phenomena"* without adequate explanation. Simplifying or reducing these terms for clarity would make the abstract more accessible.	
Are subsections and structure of the manuscript appropriate?	The manuscript's structure is mostly appropriate, but with clearer section titles, better organization of introductory and results sections, and a stronger conclusion, it would be more accessible and impactful.	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	The manuscript appears scientifically robust and technically sound due to its well-founded use of mathematical modeling and rigorous analysis of the two-neuron memristive Hopfield Neural Network (HNN). The authors employ a hyperbolic memristor model, backed by appropriate equations, to simulate synaptic weights and explore how electromagnetic radiation (EMR) influences neural dynamics. Additionally, the use of Lyapunov exponents and phase portraits to analyze chaotic behavior adds technical depth, ensuring the results are quantitatively validated. The Pspice circuit simulations further demonstrate the real-world feasibility of the model, making the study grounded in both theoretical and practical frameworks.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	The references in the manuscript are largely sufficient, covering a range of relevant topics such as memristive neural networks, chaotic systems, and Hopfield networks. However, some references are slightly outdated, with a few from the early 2000s or before. While these are foundational, adding more recent references would strengthen the paper by aligning it with the latest developments in the field. **Suggestions for Improvement:** 1. **Add More Recent Work**: Some references are from 2020–2023, but the paper could benefit from including more research from the past 2–3 years on topics like memristors, neuromorphic computing, and EMR in neural networks. 2. **Expand Literature on EMR in Neural Systems**: Consider adding references that explore the influence of EMR on artificial intelligence or brain-computer interfaces to connect your research to broader applications.	

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Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	The language of the manuscript requires improvement to be fully suitable for scholarly communication. While the technical content is strong, the readability is hindered by several factors: Sentence Structure, Proofreading, Consistent Terminology. Improving the language quality will significantly enhance the manuscript's accessibility and effectiveness in scholarly communication.	
Optional/General comments	**Research Significance**: The exploration of electromagnetic radiation (EMR) in relation to memristive Hopfield Neural Networks is a timely and relevant topic. The potential applications in neuromorphic computing and artificial intelligence highlight the importance of this research, and the authors are encouraged to emphasize this significance throughout the manuscript. **Figures and Tables**: While the figures included provide valuable visual representation, ensuring that each figure is well-labeled and accompanied by descriptive captions will aid in understanding. It might also be helpful to provide a summary table that consolidates key findings from the various cases studied. **Engagement with Previous Research**: The manuscript could benefit from a more in-depth discussion of how the current findings compare to existing research. Highlighting similarities or differences with previous studies can provide context and strengthen the argument for the proposed approach. **Interdisciplinary Connections**: Considering the interdisciplinary nature of the study, the authors might want to engage with literature from related fields, such as computational neuroscience or physics, to broaden the scope and impact of their work. **Future Directions**: In the conclusion, discussing potential future research directions could inspire follow-up studies. This would also provide readers with insight into the next steps in exploring EMR's effects on neural networks and could open avenues for collaborative research. **Acknowledgments**: If applicable, including an acknowledgment section for any funding sources, collaborators, or institutions that supported the research would enhance the manuscript's completeness. By addressing these comments, the authors can strengthen their manuscript and better communicate their findings to the scientific community. Overall, the study holds significant potential, and with some revisions, it can make a meaningful contribution to the field.	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

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