Journal Name:	**Asian Journal of Mathematics and Computer Research**
Manuscript Number:	**Ms_AJOMCOR_12554**
Title of the Manuscript:	**NUMERICAL SOLUTIONS OF THE SYNERGY BETWEEN MATHEMATICAL MODELS AND ARTIFICIAL INTELLIGENT (AI) USING FINITE DIFFERENCE METHOD**
Type of the Article	

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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 article provides an overview of the numerical approach to the finite difference method (FDM) and demonstrates how the heat equation, wave equation, and Laplace's equation can be discretized for numerical solutions and solved through iterative procedures. By integrating these equations with artificial intelligence models, we achieved real-time control over the FDM technique, enabling us to identify high- frequency responses and enhance computational stability. It will be demonstrated that the FDM, augmented with AI capabilities, can effectively tackle stiff partial differential equations (PDEs) while minimizing numerical oscillations and stability issues. This advancement broadens the application of FDM in real-time scenarios, including fields such as geophysics and wave simulation.	
Is the title of the article suitable? (If not please suggest an alternative title)	Yes	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some	Everything is fine	
Are subsections and structure of the manuscript appropriate?	The subsections and structure of the manuscript are fully consistent. This	

	manuscript is scientifically sound and technically sound. References are sufficient. This work meets all the requirements of the study.	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is	**This study is scientifically correct. The results obtained are very interesting. The peculiarity is that, numerical calculations of various equations of mathematical physics are considered.**	
Are the references sufficient and recent? If you have suggestions of	Yes	
Minor REVISION comments **Is the language/English quality of the article suitable for scholarly**	Yes	

Optional/General comments	This study meets all the requirements of the journal. This study examines the integration of artificial intelligence (AI) with finite difference methods (FDM) to address partial differential equations (PDEs) and enhance computational models in mathematical simulations. Traditional FDM techniques, widely utilized for obtaining numerical solutions to PDEs in fields like physics, engineering, and data science, often fall short in high-dimensional, nonlinear, or computationally intensive scenarios due to limitations in grid size and stability. Recent advancements in AI, particularly in machine learning (ML) and deep learning (DL), offer promising methods to improve FDM, such as intelligent grid refinement, adaptive time-stepping, and optimal model selection, which can significantly reduce error rates and computational costs. The literature reviewed in this paper indicates that AI is transforming the use of FDM in areas like fluid dynamics, climate modeling, and wave propagation, enhancing both simulation precision and resolution. This research utilizes AI-enhanced FDM on various PDEs, including the heat equation, wave equation, Laplace's equation, and Burger's equation, all implemented in Python. Simulations demonstrate that merging AI with FDM allows for real-time optimization, enabling decision-makers to adjust solutions based on available resources and focus on high-error areas. The findings suggest that AI techniques yield significant computational efficiencies and robust solution performance compared to standard FDM approaches, indicating substantial opportunities for scalable and effective numerical solutions. Future research could expand on the use of AI in more complex PDEs across diverse fields such as healthcare, finance, and geophysics.	

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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