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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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
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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 work bridges the gap between classical numerical methods and modern AI techniques, offering scalable and efficient solutions to complex PDEs that were previously computationally prohibitive. By enhancing simulation accuracy and reducing costs, it opens new possibilities for advanced research in fields like fluid dynamics, geophysics, and beyond.	
Is the title of the article suitable? (If not please suggest an alternative title)	Title is more comprehensive I suggest the title for this research as: **"AI-Augmented Finite Difference Methods for Solving PDEs: Advancing Numerical Solutions in Mathematical Modeling"**	

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 is well-written and provides a good overview of the research focus, methodology, and findings. But I suggest some changes: 1. Some sentences are long and dense, making them harder to read. Breaking them into shorter sentences can improve clarity. 2. Remove redundant phrases, such as "the study is done using" and "it is found that." 3. Conclude with a statement emphasizing the broader impact or significance of the study, beyond technical contributions. Revised abstract: "This study explores the integration of artificial intelligence (AI) with finite difference methods (FDM) to enhance the numerical solution of partial differential equations (PDEs) in physics, engineering, and data science. Traditional FDM approaches, though effective for approximating solutions to PDEs, face limitations in handling high-dimensional, nonlinear, or computationally intensive problems due to constraints in grid size and stability. AI techniques, particularly machine learning (ML) and deep learning (DL), offer promising enhancements, including adaptive grid refinement, optimized time-stepping, and model selection, which significantly improve accuracy and computational efficiency. Using Python-based implementations, this research investigates AI-augmented FDM for various PDEs, including the heat equation, wave equation, Laplace's equation, and Burger's equation. Simulation results demonstrate that AI-enhanced FDM not only achieves robust performance but also reduces computational costs by focusing resources on high-error regions in real time. These findings highlight the potential of AI-driven techniques to revolutionize numerical modeling in applications such as fluid dynamics, climate modeling, and wave propagation. This interdisciplinary approach opens avenues for scalable and efficient solutions to complex PDEs, with implications for diverse fields like healthcare, finance, and geophysics. Future research will focus on extending these methods to more intricate PDEs and exploring their application in real-world, resource-constrained scenarios"	
Are subsections and structure of the manuscript appropriate?	Need improvement: 1. Numbering the main sections and subsections 2. Number the equations 3. Number the examples	

	4. Appropriate captions for Figures are required.	
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 abstract appears scientifically sound, emphasizing the integration of AI with finite difference methods (FDM) to address limitations in solving partial differential equations (PDEs). It effectively highlights the benefits of AI-enhanced FDM in improving accuracy and efficiency, though more detail on specific methodologies or validation metrics would strengthen its scientific rigor.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	**yes**	
Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	Need improvment	
Optional/General comments		

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)*	

Reviewer Details:

Name:	**Tahir Naseem**
Department, University & Country	**Government Degree College Khanpur, Pakistan**