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RESEARCH ARTICLE OPEN ACCESS

Keep the title short, informative, and clearly stating your core contribution

First Author[1] | **Second Author**[1,2] | **Third Author**[3]

[1]Department of Artificial Intelligence, Name of Institute, City, Country | [2]Department of Artificial Intelligence, Name of Institute, City, Country | [3]Department of Mathematics, Name of Institute, City, Country.

Corresponding author: correspondingauthor@inst.edu

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ABSTRACT

The abstract must be written as a single, fully justified paragraph between 150 and 250 words, using clear, active voice in the third person without any subheadings, indentations, footnotes, references, or unexplained acronyms. It should begin with one or two sentences establishing the research context and the specific problem or knowledge gap, immediately followed by a clear statement of the primary objective or hypothesis. The paragraph should then summarize the methodology, experimental design, or theoretical framework in one or two concise sentences, then devote two to three sentences to presenting the core data, key findings, and analytical results. Finally, it must conclude with a sentence highlighting the overall significance, theoretical impact, or practical implications of the work, followed directly by a list of four to six searchable keywords and any required subject classification codes on a separate line.

KEYWORDS: *Include 3 to 6 specific, searchable terms immediately following the abstract block (e.g., Deep Learning | Optimization | Neural Networks | Fixed Point).*

AMS Classification: Provide relevant classification codes (AMS) here.

1 Introduction

The introduction should be written as a cohesive sequence of structured paragraphs that systematically build the foundation for your paper without using subheadings or bullet points. It must open with a broad overview of the research domain to establish its contemporary relevance, then gradually narrow to the specific open problem, theoretical limitation, or knowledge gap addressed by the work. The narrative must then integrate a concise literature review that critically synthesizes relevant foundational studies, current state-of-the-art developments, and existing methodological approaches. Rather than simply listing prior works, this review should evaluate their limitations to explicitly justify the necessity of your research. Following the literature review, the introduction must state your primary research objectives, core hypotheses, and specific novel contributions, briefly outlining the overall methodological framework used to solve the problem. Finally, it should conclude with a brief structural roadmap of the paper, detailing how subsequent sections are organized to guide the reader through the document.

1.1 Mathematical Environments, Cross-Referencing, and Media

This section details the technical, formatting, and structural requirements for preparing the core mathematical and empirical content of the manuscript. Authors should declare mathematical environments such as:

Theorem 1.1. Let $\mathbb{C}$ be the complex...

Proof. For $z \in \mathbb{C}$... ∎

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Lemma 1.2. You can write the statement of the lemma here and can introduce more `lemma` environments.

Proposition 1.3. You can write the statement of the proposition here and can introduce more `proposition` environments.

Corollary 1.4. You can write the statement of the proposition here and can introduce more `corollary` environments.

Example 1.5. You can write the statement of the proposition here and can introduce more `example` environments.

Remark 1.6. You can write the statement of the remark here and can introduce more `remark` environments.

Note 1.7. You can write the statement of the proposition here and can introduce more `note` environments.

Using standard LaTeX packages like `amsmath` and `amsthm`, ensuring each environment is clearly defined, sequentially numbered, and capped with an appropriate end-of-proof symbol. Equations must be presented using:

$$\oint_C f(z)dz = 0. \tag{1}$$

The environment for numbered displays, reserving them exclusively for equations explicitly cited in the text, and referencing them dynamically using "Theorem 1.1" or "equation (1)" rather than hardcoded digits. Subsections should be introduced via `\subsection{title}` to break complex topics into readable modules, maintaining a clear narrative hierarchy without excessive nesting. Figures must be placed inside a `\begin{figure}...\end{figure}` environment with a centered graphic, an explicit, and a detailed caption placed directly below the graphic. Refer to the figures using labels "Figure 1.1".



Figure 1: caption text

Tables must be constructed using a `\begin{table}` and `\begin{tabular}` structure, ensuring the `\caption{caption text}` is placed directly above the table frame. Finally, citations and references must adhere strictly to standard numerical or BibTeX format, using `\cite{citation_key}` in-text to link dynamically to a `\begin{thebibliography}` entry or `\bibliography{references}` database containing complete metadata, standardized journal abbreviations, and active digital object identifiers (DOIs) where available. Cite "Rostova [1] proved...".

Use the environments like `itemize` or `enumerate` to make listings:

- **Data Preprocessing:** Normalized dataset tensors with zero-mean variance.
- **Hyperparameter Tuning:** Grid search conducted across 10^2 topology iterations.
- **Validation:** 10-fold cross-validation with stratified sampling.

Use `enumerate` as follows:

(TN1). First Item: Description here.

(TN2). Second Item: Description here.

(TN3). Third Item: Description here.

(TN4). Fourth Item: Description here.

Use `list` as follows:

(L1) First item in custom list;

(L2) Second item in custom list;

(L3) Third item in custom list.

You can make simple tables as follows:

Framework	Throughput (img/s)	RAM Usage (GB)	Accuracy
Standard ResNet	9,94	5.4	100.1%
Transformer-X	190	11.2	97.3%
XXXX-X	890	15.2	140.3%
Proposed Model	**1,850**	**4.1**	**95.6%**

Table 1: Benchmarking framework against state-of-the-art baselines.

2 Results & Discussion

The Results and Discussion section should be written as a cohesive sequence of structured paragraphs that present your empirical or theoretical findings and critically analyze their implications without introducing unrelated context. It must begin with a clear, logical presentation of the core results, utilizing precise data, key metrics, or proven statements that directly correspond to the methodologies described earlier in the paper. As findings are introduced, they should be accompanied by immediate interpretation, explaining the underlying mechanisms or theoretical principles that account for the observed patterns. The narrative must then contextualize these findings within the broader academic landscape by explicitly comparing them with existing state-of-the-art studies, highlighting key improvements, or explaining any unexpected discrepancies. Finally, the section should address the practical or theoretical limitations of the approach, discussing how boundary conditions or specific assumptions might influence the scope and applicability of the results.

3 Conclusion

The conclusion section of a manuscript should be written as a cohesive, structured paragraph that brings the paper to a definitive close without introducing new technical data or secondary hypotheses. It should open with a concise restatement of the primary research objective and core motivation, immediately summarizing how the key findings or theoretical results successfully addressed the central problem. The narrative must then explicitly highlight the significance and broader impact of the contributions, explaining how the work advances the field or improves upon existing methodologies. Finally, the paragraph should conclude by outlining logical directions for future research, identifying potential extensions of the framework, open theoretical questions, or practical real-world applications that build directly upon the study's outcomes.

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Declarations

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Conflicts of Interest The authors declare that they have no competing financial or non-financial interests to disclose.

Ethical Approval. Not applicable. (OR) Ethical approval was granted by the Ethics Committee of [University Name] (Protocol No. XXX).

Data Availability. The datasets generated and analyzed during the current study are available in the [Repository Name] repository at `https://doi.org/10.xxxx/xxxx`.

Use of Generative-AI tools declaration. During the preparation of this work, the author(s) used [Insert Tool Name, e.g., ChatGPT / Claude / Gemini] in order to [specify exact function, e.g., improve readability and grammar / rephrase draft sections / summarize preliminary literature]. After using

this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article. (OR) The authors declare they have not used Artificial Intelligence (AI) tools in the creation of this article.

Author Contributions. All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by [Author 1] and [Author 2]. The first draft of the manuscript was written by [Author 1] and [Author 3], and all authors commented on previous versions of the manuscript.

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