ISSN: 2320-5407

ISSN NO. 2320-5407

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: **IJAR-54585** **Date**: 30-10-2025

Title: HYBRID MODEL FOR DETECTING CYBERSECURITY THREATS BASED ON DEEP LEARNING WITH AN OPTIMISATION ALGORITHM

Recommendation:
Accept as it is .....
Accept after minor revision ...✓.....
Accept after major revision.....
Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance		✓		

Reviewer Name: **Sudhanshu Sekhar Tripathy** **Date:** 30-10-2025

Reviewer's Comment for Publication.

(*To be published with the manuscript in the journal*)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewer's name.

Reviewer's Comment for Publication

The paper proposes a **hybrid intelligent model** combining a **deep neo-fuzzy neural network** and a **combined particle swarm–genetic optimization algorithm** for efficient detection and prevention of cybersecurity threats. The topic is highly relevant, addressing modern AI-driven cybersecurity solutions. The hybrid architecture and optimization approach demonstrate clear innovation.
However, **minor revisions** are required to improve figure clarity, ensure reference consistency, and enhance the abstract structure.

Detailed Reviewer's Report

1. Scope & Relevance

- The manuscript addresses a critical challenge in **cyber threat detection** through a hybrid deep learning architecture, making it highly relevant to cybersecurity and AI research.

ISSN: 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

REVIEWER'S REPORT

- It demonstrates novelty by combining **fuzzy neural networks** with **metaheuristic optimization algorithms (PSO-GA)**.
- The topic is aligned with current global concerns on data security and threat prevention.

2. Structure & Technical Presentation

- The paper follows a clear structure: Abstract → Introduction → Literature Review → Methodology → Results → Conclusion.
- Figures (block diagram, algorithm result graph) are informative but need clearer captions and labeling.
- The **abstract** should be revised to emphasize the novelty, objectives, and quantitative results.
- Formatting inconsistencies (spacing, paragraph alignment) should be standardized for readability.

3. Methodological / Analytical Details

- The methodology integrates **deep neo-fuzzy neural networks** with an **optimization layer** that merges **particle swarm optimization (PSO)** and **genetic algorithms (GA)**.
- The stepwise explanation of the hybrid optimization is well-presented and logically structured.
- The mathematical formulations are accurate, though some symbols could benefit from clearer formatting.
- The inclusion of comparative modeling results (Fig. 2) effectively validates the proposed system's superiority.
- Add a short description of **dataset type or experimental environment** (if any simulation or real dataset was used).

4. References & Citations

- The references are extensive, up-to-date (2019–2025), and well-selected.
- Some references are repeated (e.g., ResearchGate links appear multiple times).
- The citation style should be uniform; remove redundant URLs and maintain consistent DOI formatting.

ISSN: 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

- Include additional context on how each cited study influenced the model's design.

5. Language & Style

- The manuscript uses academic English effectively.
- Minor grammar issues and overlong sentences should be revised for conciseness.
- Replace informal connectors (e.g., "So," "Thus,") with academic transitions like "Therefore," or "Hence."
- Ensure consistent tense usage when describing methods and results.

6. Key Strengths

- Innovative integration of **deep learning with dual optimization algorithms (PSO-GA)**.
- Strong mathematical formulation demonstrating theoretical soundness.
- Clear visualization of model performance through error vs. iteration comparison.
- Relevant and recent literature coverage.
- Practical contribution to **AI-based cybersecurity solutions**.

7. Areas for Improvement (Minor Revision Needed)

1. Improve the **Abstract** — make it concise, include objectives, method novelty, and main results.
2. Enhance **figure captions** and ensure sequential numbering.
3. Remove redundant web links in **References**; follow a uniform citation style.
4. Clarify whether **experimental validation or simulation** was performed (e.g., test dataset).
5. Proofread for **grammar and formatting consistency**.
6. Emphasize the **practical implications** of the model in real-world threat environments.

ISSN: 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

REVIEWER'S REPORT

Final Feedback to Author

The paper contributes substantially to the field of **AI-based cybersecurity** through a robust and hybrid architecture combining deep learning and evolutionary computation. The theoretical depth, optimization novelty, and structured results presentation make it suitable for publication. After **minor revisions** in abstract refinement, figure clarity, and citation consistency, the manuscript will meet the journal publication standards.