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REVIEWER'S REPORT

Manuscript No.: IJAR-53666 Date: 04/09/2025

Title: AI for Disability Support: A Secure Framework Using Generative Models, RL, and FL

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

Rating	Excel.	Good	Fair	Poor
Originality	**YES**			
Techn. Quality		**YES**		
Clarity		**YES**		
Significance	**YES**			

Reviewer Name: Emmanuel KUBANA **Date:** 04/09/2025

Reviewer's Comment

The manuscript addresses an important and timely topic: integrating Generative AI, Reinforcement Learning (RL), and Federated Learning (FL) to create secure, adaptive healthcare solutions for people with disabilities. The proposed **SAIF-D framework** is novel in combining these paradigms with privacy, accessibility, and inclusivity at its core. The paper is well-organized, cites recent and relevant literature (2018–2025), and clearly motivates the need for such a framework. However, the work remains at a conceptual and review level, with no empirical validation. Several aspects could be clarified, expanded, or strengthened to improve academic rigor and practical relevance.

Detailed Reviewer's Report

Strengths

1. **Timeliness and Relevance** – The topic aligns with current healthcare AI challenges, particularly privacy, personalization, and accessibility.
2. **Comprehensive Literature Review** – Covers Generative AI, RL, and FL with citations to foundational works (Goodfellow, McMahan, Sutton & Barto) and recent studies (2023–2025).
3. **Novel Integration Framework (SAIF-D)** – The layered architecture (FL → RL → Generative AI) is logical and well-explained.
4. **Security Considerations** – The discussion of adversarial training, Byzantine-robust aggregation, blockchain-inspired logging, and explainability tools adds depth.
5. **Clarity of Writing** – The paper is generally well-structured and accessible, with clear subsections and practical use cases.

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Weaknesses / Areas for Improvement

1. **Lack of Empirical Validation** – The framework remains theoretical. No experiments, simulations, or case studies beyond literature-based illustrations are presented.
2. **Overstatement of "Limitations: None"** – This is inaccurate. The framework has acknowledged technical and ethical challenges (non-IID data in FL, RL instability, Generative AI hallucination). These must be listed explicitly in the "Limitations" section.
3. **Novelty vs. Review Balance** – The paper oscillates between being a review article and a framework proposal. A clearer positioning is needed: is it primarily a review or a conceptual framework paper?
4. **Graphical Abstract and Figures** – Figure 1 is described but not clearly provided in the extracted text. The visual should be professionally designed and self-explanatory.
5. **Comparative Depth** – The comparison table (Table 1) is useful but simplistic. It would benefit from more details (e.g., real-world deployment readiness, scalability, regulatory considerations).
6. **Ethical/Regulatory Discussion** – The ethical section is too brief. A deeper analysis of regulatory frameworks (e.g., GDPR, HIPAA) and consent models for disability-focused healthcare is warranted.
7. **Minor Issues** –
    - References: Some recent works (e.g., clinical trials of AI-powered assistive devices) could be included.
    - Abstract: While informative, it could highlight research gaps more explicitly.
    - Typographical/formatting inconsistencies in spacing and line breaks.

Recommendations

- **Empirical Strengthening**: Even a small-scale case study, simulation, or prototype demo would improve the contribution significantly.
- **Limitations Section**: Revise to include the technical, ethical, and practical barriers discussed elsewhere.
- **Clarify Scope**: Decide whether this is primarily a *systematic review* or a *conceptual proposal*, and adjust framing accordingly.
- **Expand Ethical and Regulatory Discussion**: Incorporate analysis of privacy laws, informed consent, and accessibility standards (e.g., WCAG).
- **Improve Visuals**: Provide a clear, high-quality diagram of the SAIF-D architecture and graphical abstract.
- **Polish Writing and Formatting**: Address minor formatting issues for professional presentation.

Recommendation

Major Revisions – The paper is promising and relevant but needs significant improvements in empirical validation, limitations discussion, and scope clarification before it can be considered for publication.