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Peer Review

Review of: "Differentiating Conscious Human Entities From Autonomous AI Agents: A Heart Rate Variability (HRV) Framework for Human Authentication in the Emerging AI Economy"

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Accepted with Major Revisions

The manuscript addresses an important and emerging problem at the intersection of AI governance, physiological sensing, and digital identity verification. The conceptual framework is innovative and socially relevant. However, the paper currently remains more conceptual than experimentally validated. Significant revisions are required in terms of methodological clarity, experimental validation, IEEE formatting consistency, and quantitative performance evaluation before final acceptance.

Comment:

1. Improve IEEE formatting consistency, figure numbering, and citation alignment.
2. Reduce repetitive discussion in the introduction and improve technical conciseness.
3. Include detailed methodology regarding classifier models, feature extraction, parameter settings, and authentication workflow implementation.
4. Add original experimental validation with quantitative performance metrics such as accuracy, FAR/FRR, ROC analysis, and spoof detection performance.
5. Include additional diagrams and graphical comparisons to improve readability and technical clarity.
6. Clearly differentiate conceptual claims from experimentally verified results.

doi.org/10.32388/QGU27C

7. Discuss limitations of the proposed framework more explicitly, particularly concerning privacy, scalability, and colluding-human attack scenarios.

Declarations

Potential competing interests: No potential competing interests to declare.