

REVIEWER'S REPORT

Manuscript No.: JNCS -082

Title: EXPLAINABLE ARTIFICIAL INTELLIGENCE FOR CYBERSECURITY: TECHNIQUES, APPLICATIONS, CHALLENGES, AND FUTURE RESEARCH DIRECTIONS

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 Id: JPR-203

Reviewer's Comment for Publication.

The manuscript presents a relevant and well-organized review of Explainable Artificial Intelligence (XAI) for cybersecurity, with appropriate coverage of interpretable models, LIME, SHAP, and feature-importance techniques and their applications in intrusion detection, malware analysis, phishing detection, anomaly detection, and security operations. The paper provides a particularly useful discussion of explanation reliability, computational overhead, adversarial manipulation, privacy concerns, and the risk of human overreliance on AI-generated explanations. The proposed conceptual framework connecting threat detection, explanation generation, analyst interpretation, and verification adds practical value to the review. However, the literature-review methodology should be strengthened by specifying the databases searched, search terms, publication period, and study-selection criteria. The paper would also benefit from a deeper comparative analysis of XAI techniques using factors such as fidelity, stability, computational efficiency, and suitability for different cybersecurity tasks. Overall, the manuscript addresses a significant and timely research area and is suitable for publication after minor revision.