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(57) Abstract :
Advanced Cyber Threat Detection Using AI and Image Processing Techniques The rapid evolution of cyber threats necessitates advanced detection techniques to safeguard sensitive information and maintain digital integrity. This paper explores the integration of artificial intelligence (AI) and image processing techniques to enhance cyber threat detection capabilities. AI, with its machine learning and deep learning algorithms, can analyze vast datasets to identify patterns indicative of cyber threats. By incorporating image processing techniques, the system can detect anomalies in visual data representations of network traffic and system activities. This dual approach leverages AI's predictive analytics and image processing's ability to interpret complex visual data, creating a robust framework for early threat detection. The proposed method involves training AI models on historical cyber-attack data, enabling them to recognize and respond to new, evolving threats in real-time. Image processing techniques enhance this by converting network data into visual formats, allowing the AI to detect subtle, often overlooked anomalies. The integration of these technologies not only improves detection accuracy but also reduces false positives, ensuring that security teams can focus on genuine threats. This approach provides a comprehensive defense mechanism, capable of adapting to the ever-changing cyber threat landscape.

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