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An Editorial

Emerging uses and potentialities of Artificial Intelligence and Machine Learning in Digital Forensics

The integration of Artificial Intelligence (AI) as well as Machine Learning (ML) has significance role in digital forensics and offer an exciting opportunity and further it keep alive streamline tasks like pattern recognition, anomaly detection, and predictive analysis. Though, the opaque nature has some of the crucial questions regarding accountability and transparency. Research Focus in these areas are urgent in building of trust and efficacy in forensic analysis.

Ethical AI frameworks is required for the forensic analysis that prioritize transparency as well as Implementing Explainable AI (XAI) will ensure that the decisions made by AI can be justified in legal contexts. In addition to these, it is very much urgent regarding strive for automated malware classification. And here good systems of behavioral analysis are highly essential in ML based algorithms to keep pace with evolving cyber threats. By addressing research directions it is possible to shape sophisticated and accountable future for digital forensics. Though there are many progress of digital forensics but still it has some of the challenges, and this may include *Volume of Data*, The sheer volume of digital data can be overwhelming, making it tough to filter out relevant evidence and focus on the right leads. *Encryption and Anti-Forensic Tools*, As criminals are widely using sophisticated encryption and anti-forensic techniques, thus it is considered as very important and vital in critical data management. *Cloud Computing*, As far this technology is concerned, it uses distributed nature and complicates evidence retrieval and jurisdiction, and therefore it is creating new challenges in the digital forensic systems and management.

Thus, Digital forensics stands at an exhilarating crossroads and here rapid growth of some of the technologies like cloud computing, quantum computing, artificial intelligence, and Blockchain, edge computing, Internet of Things, etc. are offering challenges and opportunities, both. As far as future research is concerned it is dedicated in robust, scalable, as well as ethical solutions for latest digital forensics solutions effectively. Digital forensics is dedicated in interdisciplinary collaboration, and dedicated in shaping the future landscape of digital forensics. Digital Forensics is changing rapidly and

thus its allied concern also such as security, legal, and business aspects. Because technology is always advancing, therefore the significance of digital forensics is also essential to build-up with the new methodologies, tools, and a demand for multidisciplinary expertise. As far as future of Digital Forensic is concerned it is bright, and essential to adapt and grow in connection with tomorrow's requirement.