Research Question:

What are the major benefits and challenges of using artificial intelligence to automate and enhance the accuracy of digital forensics investigations in cloud environments?

Discipline	Insight of Author
Criminology	"The on-going techno- logical advancements have helped computer criminals to plan and implement more sophisticated crimes, which require that AI-powered digital forensics tools be readily accessible (Butterfield et al., 2018)" (Jarrett & Choo, 2021, p. 9).
	"To promote the equitable treatment of individuals and adhere to the Federal Government's fundamental obligation to ensure fair and impartial justice for all, with respect to the use of AI in the criminal justice system, the Attorney General shall, in consultation with the Secretary of Homeland Security and the Director of OSTP: (i) within 365 days of the date of this order, submit to the President a report that addresses the use of AI in the criminal justice system, including any use in: … (F) crime forecasting and predictive policing, including the ingestion of historical crime data into AI systems to predict high-density ''hot spots'';" ((*Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence*, 2023).
Criminal Justice	"However, when authorized by a court to conduct digital forensics, practitioners may have different obligations that supersede certain privacy laws, as their actions are mandated by legal authorization and aimed at fulfilling court requirements while ensuring confidentiality and adherence to the legal process" (Malik et al., 2024, p. 21).

	“It casts a spotlight on critical issues, including concerns related to data privacy, security, data quality, and data integrity. These concerns assume paramount importance in the context of forensic investigations, with far-reaching implications for the credibility and admissibility of digital forensic evidence in legal proceedings” (Dunsin et al., 2024, p. 2)
Information Technology	“This increasing interest in the use of big data and cloud computing services presents both opportunities for cybercriminals (e.g. exploitation and hacking) and challenges for digital forensic investigations (Cheng et al., 2013)” (Mohammed et al., n.d., p. 137).
	“Cloud security plays a critical role in establishing a robust defense mechanism to prevent security incidents and breaches. It focuses on proactive measures to minimize the likelihood of incidents occurring in the first place” (Malik et al., 2024, p. 13).

References

Dunin, D., Ghanem, M. C., Ouazzane, K., & Vassilev, V. (2024). A comprehensive analysis of the role of artificial intelligence and machine learning in modern digital forensics and incident response. *Forensic Science International. Digital Investigation*, *48*, 301675. https://doi.org/10.1016/j.fsidi.2023.301675

Jarrett, A., & Choo, K. R. (2021). The impact of automation and artificial intelligence on digital forensics. WIREs. Forensic Science, 3(6). https://doi.org/10.1002/wfs2.1418

Malik, A. W., Bhatti, D. S., Park, T., Ishtiaq, H. U., Ryou, J., & Kim, K. (2024). Cloud Digital Forensics: Beyond tools, techniques, and challenges. Sensors, 24(2), 433. https://doi.org/10.3390/s24020433

Mohammed, H., Clarke, N., & Li, F. (n.d.). An automated approach for digital forensic analysis of heterogeneous big data. Scholarly Commons. https://commons.erau.edu/jdfsl/vol11/iss2/9/?utm_source=commons.erau.edu%2Fjdfsl%2Fvol11%2Fiss2%2F9&utm_medium=PDF&utm_campaign=PDFCoverPages

Safe, secure, and trustworthy development and use of artificial intelligence. (2023, November 1). Federal Register. https://www.federalregister.gov/documents/2023/11/01/2023-24283/safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence