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Career Professional Paper:

Digital Forensics Analyst

For this professional career paper, the cybersecurity career I chose to discuss is digital forensics analyst. This career piques my interest and is something I am considering looking more into and possibly pursuing in the future. A digital forensics analyst investigates computer-based cybercrimes by analyzing properly collected and preserved digital and physical evidence (Onet Online, 2023).

Professionals in this career heavily rely on cybersecurity and social science principles to perform their duties. An important part of a digital forensics analyst's job is collecting and preserving digital and physical media such as hard drives, computers, event logs, and files (CISA, 2023). These collected media involve specific procedures and laws in properly collecting, storing, and preserving them that relate to cybersecurity principles of confidentiality and data integrity that are important for their acceptance as evidence in court. In investigating computer-based cybercrimes, digital forensics analysts must know social science principles, such as psychology, to understand and find patterns of cybercriminals' behavior (Johns, 2021). Psychology helps digital forensics analysts understand the possible motivations of the cybercrime committed, build a profile of the possible cybercriminal, and identify the exploited technology and victims. Knowledge of sociology and law is also important in performing duties

as a digital forensic analyst to understand the legal and ethical implications of collecting evidence and unauthorized disclosure of information (Maratsi et al., 2021). Search warrants are required for digital forensics analysts to legally collect digital media as evidence to protect an individual's right to privacy. Digital forensics analysts are also ethically bound to a code of proper chain of custody of evidence that prevents unauthorized information disclosure.

Another important job of a digital forensics analyst is to provide expert witness testimony in court proceedings when requested (FBI, 2023). When doing so, they are often tasked with assisting the legal counsel, who may not be as technically versed in understanding the empirical evidence gathered. Concepts discussed in class, such as parsimony and empiricism, can be applied to this aspect of a digital forensics analyst's job. The primary job of digital forensics analysts is to investigate cybercrime, and as discussed in class, cybercrime can be any act that violates laws using computers or other digital technologies. They can range from white-collar crimes of cryptocurrency Ponzi schemes, investigating transactions made on the blockchain, to child pornography and human trafficking, collecting digital media such as images and videos as evidence. Aside from working with law enforcement agencies, digital forensics analysts can also work for private companies as part of incident response teams. In an example of a ransomware attack, discussed in class as a type of malware that encrypts the data of a target for ransom, the job of a digital forensics analyst in incident response would be to analyze the digital evidence collected and form detailed reports that outline the methods and possible lapses in security controls and measures.

There are several ways the job of a digital forensics analyst can be related to marginalized groups, such as the possible victims of cybercrimes, but for this paper, I would focus on the possible barriers to entry into the field. Becoming a digital forensics analyst often

deals with very sensitive information, which requires a very high standard of qualifications. For example, applying for a digital forensics analyst job for the FBI requires at least a bachelor's degree in a computer-related field and being able to obtain a top-secret clearance (FBI, 2023). These requirements may prove to be barriers for marginalized groups of individuals who come from low-income communities. Schools in low-income communities often do not have a robust computer program that would provide opportunities to explore possible career opportunities in the cyber field. To be able to obtain a top-secret clearance also requires an individual to have no lapses when it comes to their finances. Automatic disqualifiers include defaulting on student loans or failing to file income tax returns (FBI, 2023).

The job responsibilities of a digital forensics analyst also play a huge role in shaping society. Being tasked with investigating cybercrime, they play a role in law enforcement and ensuring cyberspace is safe for members of the community, state, and country. Detailed reports on digital forensics also show possible lapses in security, which influences the amendment or proposal of legislation to protect society. Sharing these reports also helps improve the overall cyber resilience of society by educating society on cybersecurity best practices.

Works Cited:

- FBI (2023). Digital Forensics Examiner. Federal Bureau of Investigation. [online]. Last accessed 2 December 2023 at: https://fbijobs.gov/sites/default/files/2023-04/career_digitalforensicexaminer.pdf
- CISA (2023). Cyber Defense Forensics Analyst. Cybersecurity & Infrastructure Security Agency. [online]. Last accessed 2 December 2023 at: <https://www.cisa.gov/careers/work-rolescyber-defense-forensics-analyst>
- Johns, R. A. (2021). The Role of Psychology in Digital Forensics. Paraben Corporation. [online]. Last accessed 2 December 2023 at: <https://paraben.com/the-role-of-psychology-in-digital-forensics/>
- Maratsi, M., Popov, O., Alexopoulos, C. and Charalabidis, Y. 2022. Ethical and Legal Aspects of Digital Forensics Algorithms: The Case of Digital Evidence Acquisition. In 15th International Conference on Theory and Practice of Electronic Governance (ICEGOV 2022) <https://doi.org/10.1145/3560107.3560114>
- Onet Online (2023). Digital Forensics Analysts. [online]. Last accessed 2 December 2023 at: <https://www.onetonline.org/link/summary/15-1299.06#:~:text=Perform%20forensic%20investigations%20of%20operating,digital%20forensic%20evidence%20for%20analysis.>