Career Paper: Digital Forensics

Amira Muaket

Old Dominion University

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Professor Matthew Umphlet

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Digital Forensics proper definition can be " the process of collecting and analyzing digital evidence in a way that maintains its integrity and admissibility in court."(Badman & Forrest, 2024). In other words digital forensic stems from forensic science, it uses the same ideas but different methods to execute their findings. Digital forensic assists in investigating cybercrime by understanding motives and gaining insight from the digital footprint created. It's extremely relevant in this day and age since cybercrime has significantly risen with the use of technology. Now, once understanding what digital forensic is, we can observe its contributions to society. First we must establish the mult-disenplinary subjects that contribute to digital forensics, and those are criminology, law, and psychology.

Criminology "refers to the study of crime and criminals within a societal sphere."(Imm, 2023). Meaning it assists in gaining insight on why, how, and what motivates criminals in making their decisions. Relevant criminology theories that digital forensic can use are routine activities theory and neutralization theories(Module 14). Routine activities theory helps explain the likelihood of a crime occuring by taking three things that are occuring at the same time, which is suitable target, absence of capable guards and motivated offenders. With neutralization theory, it shows that criminals know what's right and wrong while executing and rationalizing their actions. Digital forensics can use these theories to develop an idea of what to come, it helps in preparation and utilization of findings to further their investigation. Law sets regulations on what's deemed plausible when engaging online. It plays a vital role with digital forensics, as this job revolves around gaining evidence to place perpetrators on trial. "One of the more dynamic areas of digital forensics is that of legal considerations and the admissibility of digital evidence in court."(Post University, 2024). Since digital evidence is used in court, it is a forensic scientist's

duty to be able to explain their findings, such as how they were able to obtain their proof and where did it stem from. It's crucial for these scientists to understand the law and their findings are accurate to be used in trials. Finally, with psychology it opens a scope on an individual's mind, especially in cyber offending. "Psychology has been integrated into digital forensics because of the need to look closely into the motivations of cybercriminals."(Johns, 2021). Psychological theories that relate to a digital forensic job can be behavioral and personality(Module 5). Behavioral theory suggests that certain behavior displayed is learned through 5 instances, (Family, schools, peers, media, and environmental influences). Personality theory focuses on 5 psychological traits that are associated with behavior,(Neuroticism, extraversion, openness, agreeableness, and conscientiousness), each having its own explanation on personality. Digital forensic can use these theories in identifying the type of crime, its impacts, and create preventional tactics.

Digital forensics in general can also be applied to various principles of social science such as objectivity and determinism.Since there various branches of digital forensic, those include computer, mobile, file system, networking system, and database scientists. Objectivity is the way scientists research and study their topic without having influence. Digital forensic scientists have their own investigation process as they determine their evidence. They use the NIST outlining 4 steps that digital forensic should take and those are data collection, examination, data analysis, and reporting. With Determinism forensic can use this principle to determine an individual's behavior, since this theory suggests that behavior is determined due to preceding events.

Digital forensics is extremely important to society since it sheds light on digital footprinting. This job contributes significantly to the justice system as well as in education. The

justice system can use evidence sustained from forensic to catch several criminals and perpetrators. While creating various perceptions and awareness on criminal activities and motives. It can also assist in further identifying causes and new theories regarding criminology, law, and psychology by integrating their findings and creating foresight, for example when and where cybercrime are likely to happen, avoiding misinterpretations of data and ensuring accurate results. Regarding education it provides understanding and awareness about online activity and ways to to avoid and detect problems. It also protects several individuals from crimes that might occur by providing feedback and actual evidence. This also assists marginalized groups and areas as well by creating documentation and support to those who are limited in resources. Since many marginalized groups CIA (confidentiality, integrity, and availability) are conflicted, digital forensics can assist in training, awareness, information, and tools to be used in everyday scheduling. It can also enhance communities by engaging and providing strategies as well.

Social science is heavily integrated in digital forensics, since it aids in their research, principles, and findings to ensure their role is properly executed. Once understanding key fundamentals of social science, digital forensic can ensure protection, awareness and accurate results. Not only does social science enhance the technical aspects but contributes effective measures to society, especially to marginalized communities. Especially in overcoming legal challenges by their findings and gaining evidence that can be used in court. Overall digital forensics contributes to a safer environment in the digital world.

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Module: 2, 5, 6, 9, 13, 14