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<div align="center">Artificial Intelligence and Machine Learning</div>

1. Describe the relationships between Big Data, AI, and Machine Learning.

Artificial Intelligence (AI) is "software that becomes aware of its own existence and can make thoughtful decisions using big data analytics" (Secure Business Operations Module 1, 7). Big Data is, of course, the massive amounts of data that would take an incredible number of man-hours to recognize consumer usage patterns. Machine Learning "is a branch of Artificial Intelligence based on the idea that machines can learn and perform actions with minimal human intervention" (Secure Business Operations Module 1, 23). These three are woven together for the benefit of automation. What would take many man-hours to complete is now done in a fraction of the time. For example, quantitative trading is now made possible due to AI, Machine Learning, and Big Data analytics. Trading algorithms are now self-correcting without any human interaction to continuously strive for optimal results. Investment portfolios are now being seen managed by AI. AI allows for the following: execute better analysis of risks and opportunities, real-time monitoring, data-driven recommendations, advanced models, predictive analytics (*AI Predictions, 1).* Taken altogether Big Data, AI, and Machine Learning is not here to "take our jobs, but to assist us in doing them better (*AI Predictions).*

2. Explain the core differences between Strong AI and Weak AI. How could strong AI pose a future security threat?

Artificial Intelligence is categorized into two: Strong AI and Weak AI. Weak AI is defined by being bound to only the rules it is programmed in. Weak AI cannot overreach and operate outside of its rule set, and for this reason Weak AI is best designed for specific, narrow tasks. An example of Weak AI is Siri. Stated otherwise, Weak AI's "intelligence level is restricted to providing solutions to problems that the system is programmed for, anything beyond that cannot be accomplished by it" (Ariwala, 1). Strong AI, on the other hand, is much more powerful and behaves similarly to a human being. Emotions, rationale, and belief systems are able to be programmed using Strong AI. A core difference, then, is that "Weak AI does not fully encompass intelligence, [but] rather, it focuses on completing a particular task it is assigned to complete" whereas it is much more difficult to set boundaries on Strong AI's intelligence. (Ariwala, 1). The point at which AI theoretically matches the human mind's capacity is called singularity. There are hypothetical fears that once AI reaches this point, human civilization is at risk with "unforeseeable results" (*What is Machine Learning, 1*). More applicable, however, is the current implication of AI attacks. Were Strong AI to use its continuous learning behaviors that define it, AI attacks are disastrous. AI attacks, then, could be applied to all sectors and on all technology platforms with the ability to adapt to its environment and learn defense postures (Secure Business Operations Module 1, 20).

Works Cited

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