CAPITOL Technology University

CAE IN CYBERSECURITY COMMUNITY

2024 CAE Community Symposium

Exploring the Intersection of Cybersecurity and Artificial Intelligence

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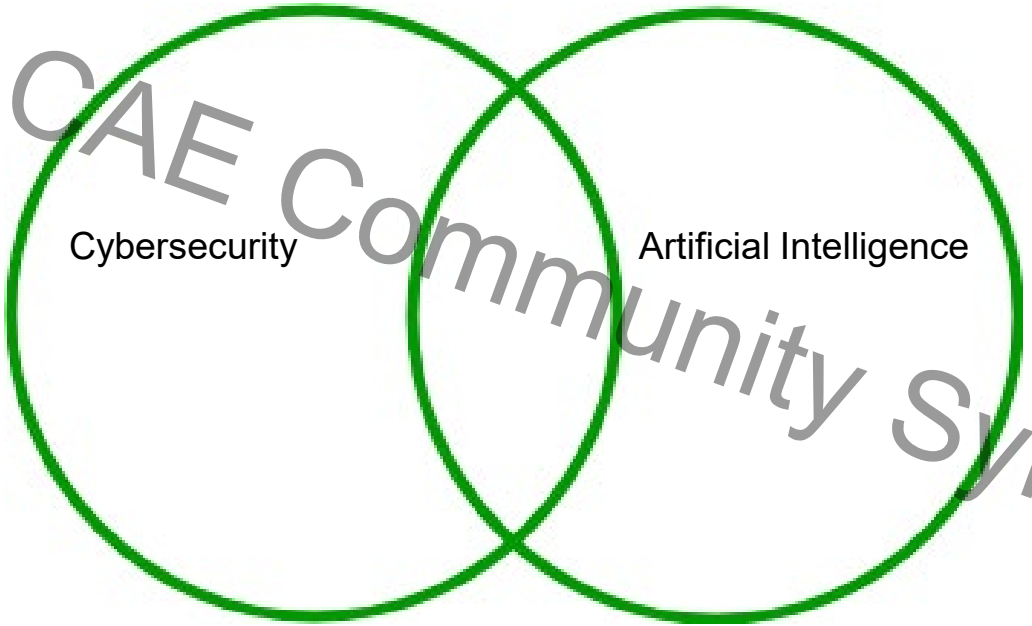

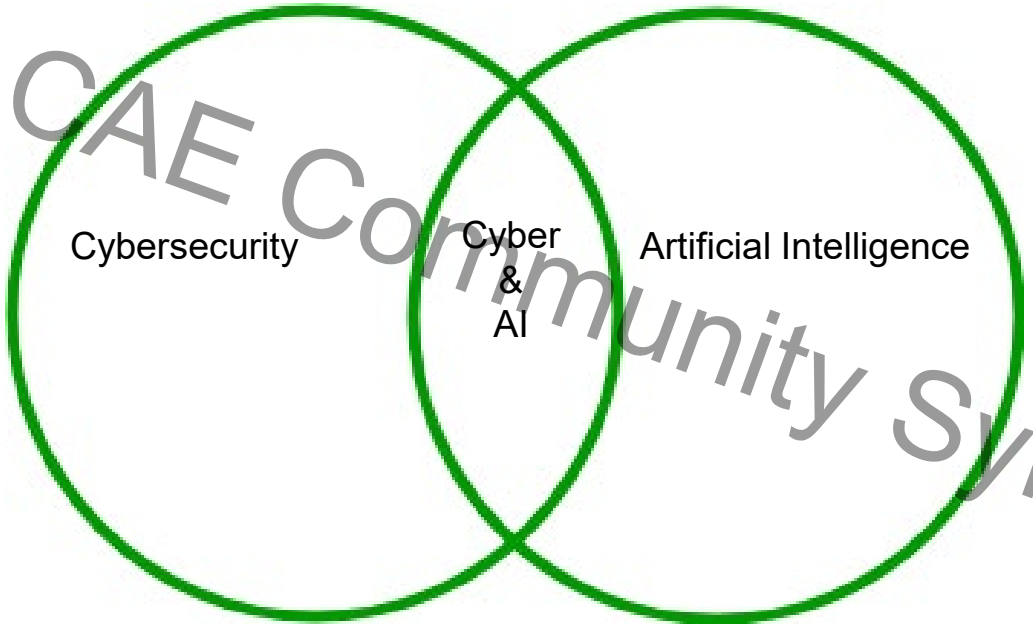

AI

- The Concept is not new
  - Alan Turning and the Turing Test – 1950
  - 1956, at the Dartmouth Conference, that the term "Artificial Intelligence" was first coined by John McCarthy (often regarded as the birth of AI.)
  - the first AI laboratory at MIT in 1959

- So, why has it suddenly surged in prominence today?
  - the exponential growth in computational power
  - the abundance of available data (147 zettabytes daily)
  - The continuous refinement in algorithms

AI

AI is divided into three different evolutionary stages, or there are three stages:

- Artificial narrow intelligence (Weak AI) – Current State
  - no genuine intelligence or there is no self awareness
- Artificial general intelligence (Strong AI)
  - Involves machines that posses the ability to perform any intelligent task that a human being can.
- Artificial super intelligence - ~2040
  - Capabilities of a computer will surpass that of a human being - hypothetical situation

AI-Based Cybersecurity

- $15 billion dollars currently
- Projected to surge to $135 billion in 2030
- To address this challenge, we need to employ force multipliers to enhance our effectiveness.
- Two key strategies for implementing force multipliers are:
    - leveraging automation for increased efficiency
    - Incorporating AI to work more intelligently.

So, how exactly does AI benefit cybersecurity?

- **Enhanced Threat Detection** - AI-driven systems can detect actual cyberattacks more accurately than humans, minimizing false positives and prioritizing responses based on real-world risks. This enables faster and more effective threat mitigation.
- **Phishing Detection** - AI is proficient at identifying and flagging suspicious emails and messages, a common weapon in the cybercriminal arsenal. It helps to thwart phishing campaigns and safeguard sensitive data.
- **Social Engineering Simulation** - AI can simulate social engineering attacks, enabling security teams to identify potential vulnerabilities before cybercriminals can exploit them. This proactive approach is crucial in staying one step ahead of malicious actors.
- **Rapid Incident Analysis** - AI's ability to analyze vast amounts of incident-related data quickly empowers security teams to take swift actions to contain threats, reducing the potential impact of cyberattacks.
- **Access Control Strengthening** -Machine learning algorithms can flag suspicious login attempts and improve password management, enhancing security.

Dark Side of AI in Cyber

- **Social Engineering Schemes** - AI enables cybercriminals to automate processes and create more personalized and convincing messages, leading to a higher success rate in social engineering attacks.
- **Password Hacking** - Enhanced AI algorithms are being used to decipher passwords more quickly and accurately, making password hacking more efficient and profitable.
- **Deepfakes** - AI's manipulation of audio and visual content enables the creation of convincing deepfake content for fraudulent purposes.
- **Data Poisoning** - Hackers can manipulate AI algorithms by poisoning training data, influencing their decisions and leading to potentially severe consequences.

Conclusion

The intersection of cybersecurity and AI is a dynamic and evolving landscape.

It is incumbent upon us, as cybersecurity leaders, educators and professionals, to embrace AI's potential, understand its risks, and continue adapting to ensure a secure and resilient digital world.