COMBATTING EMERGING BIOLOGICAL THREATS – PREPARING FOR THE FUTURE TODAY

An Integrated Machine Learning Approach To Constructing A Database Of Biological Threat Actors

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Many open-source threat databases have been built in the past to track various types of threats, actors, and groups. These databases are usually generic, quickly outdated, highly fragmented, and cover a broad set of threats. They provide a general overview but no deep insights for a specific type of threat type or attack mode. In contrast, there is specific need to understand threats that exist from actors with access to biologic agents. Such a database can enable the community to better focus and develop countermeasures. To meet this need, we are developing a human/machine integrated machine learning approach to provide a database of actors and groups that have the potential to create and execute on biological threats. Additionally, we are developing an underlying methodology so that the database can be easily updated. This talk will walk through the extracted insights and the methodology to build such a database. Specific topics to be discussed include: 1) the design of the database schema and its implementation, 2) machine learning techniques used to understand, quantify, and extract data from existing databases and open sources such as academic literature, news, and social media, 3) machine learning techniques to identify the emergence of groups over time, and 4) the integrated human/machine approach to implement the methodology including our analytic rigor and tradecraft, software development process, and machine learning techniques used to extract and link the data and ultimately build the database.