Detection of Social Engineering in Cyberspace Threats

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Abstract:

Elements of social engineering can be observed in all attacks we encounter in cyberspace today. Attackers have already understood that using these techniques significantly increases the probability of success. As threats on the Internet have evolved, social engineering techniques have evolved and improved at the same time. Thus, the tried ways of detecting a sociotechnical attack often do not apply. Attackers know about them too and seek ways to exploit other opportunities and the gullibility of victims, who often stick to these methods. Unfortunately, as the success rate of sociotechnical attacks increases, the success rate of catching attackers decreases. This is because it is often more difficult to get relevant data about an incident from a person (the victim) than from computers and network elements.

The topic of this thesis traces the developments and trends in the field of social engineering in relation to attacks in recent years. The focus is on finding or evaluating trends and general signatures used by social engineers. The thesis also envisages the use of artificial intelligence and available technologies of large language models, such as ChatGPT, for the implementation of social engineering attacks. In the context of investigating actual attacks, an integral part is to research and determine the possibilities of detecting these attacks based on some advanced methods, e.g., using artificial intelligence (AI) and deep learning (DL).

The research objective is to find, classify and describe possible attacks using social engineering and to propose effective countermeasures applicable in real life operations.

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