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Risk and Protection for Machine Learning-Based Network Intrusion

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Message from the Guest Editors

As the scale of network intrusion grows, machine learning models become a popular approach for intrusion detection based on their significant computation capability. Although machine learning-based intrusion detection models can detect a large range of network intrusions, it is difficult to explain the detection results because of the model's computation complexity. Adversarial attacks can pollute the detection training model to mislead the detection results, and they are difficult to be observed. Thus, non-explainable results and adversarial attacks lead to new risks of machine learning-based intrusion detection models.

This Special Issue invites research or review papers on new advanced protections for machine learning-based intrusion detection models that explore with their new risks. For federal learning, if malicious clients provide the training results polluted by the adversarial attacks, the server training model is also polluted. Generative adversarial networks can generate both beneficial training samples and adversarial samples. These new emerging techniques can establish hybrid protection solutions for intrusion detection to prevent their new risks.

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Message from the Editor-in-Chief

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