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Detecting Phishing Website using Machine Learning

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Abstract: *Phishing attacks continue to pose a major threat for computer system defenders, often forming the first step in a multi-stage attack. There have been great strides made in phishing detection; however, some phishing emails appear to pass through filters by making simple structural and semantic changes to the messages. We tackle this problem through the use of a machine learning classifier operating on a large corpus of phishing and legitimate emails. We design SAFEPC (Semi-Automated Feature generation for Phish Classification), a system to extract features, elevating some to higher level features, that are meant to defeat common phishing email detection strategies. To evaluate SAFE-PC, we collect a large corpus of phishing emails from the central IT organization at a tier-1 university. The execution of SAFE-PC on the dataset exposes hitherto unknown insights on phishing campaigns directed at university users. SAFEPC detects more than 70a state-of-the-art email filtering tool. It also outperforms Spam Assassin, a commonly used email filtering tool. We also developed an online version of SAFE-PC, that can be incrementally retrained with new samples. Its detection performance improves with time as new samples are collected, while the time to retrain the classifier stays constant.*

Keywords: Detecting Phishing Website, Website management, Safety tips, Safety Requirement.

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