

## **Data-Driven Vulnerability Analysis With Publicly Accessible Vulnerability Repositories**

Yuning Jiang ([yuning.jiang@his.se](mailto:yuning.jiang@his.se))

The imprecise nature of vulnerability assessment and the huge volume of scanned data increase the burden for security analyzers. It is both time-consuming and prone to errors when conducted manually. Adversary techniques prompt cybersecurity to evolve as well, with new monitoring approaches to close security gaps left by exposed vulnerabilities.

Meanwhile, contemporary advances in data-driven decision-making processes that are equipped with artificial intelligence tools profoundly broaden the boundaries of traditional human decision-making processes, especially with machine learning techniques. Actually, advancements in security-focused data-driven solutions shift the burden of large volume vulnerability management away from security experts and onto the digital alternatives. This raises the problem of how to deliver a holistic data-driven security strategy, which supports security operators to evaluate risks arising from various vulnerability sources.

This presentation covers partial results of my research, and focuses on answering the following questions: how to obtain and correlate data for vulnerability analysis considering heterogeneous sources of vulnerability alerts? And further, how to bridge the information gap in the vulnerability data sources to support vulnerability analysis?