SWINBURNE UNIVERSITY OF TECHNOLOGY

Digital Research Innovation Capability Platform

Cybersecurity Lab

The Cybersecurity Lab is tackling the technological vulnerablities of today and attempting to predict those of the future.

swinburne.edu.au/dricp/cybersecurity-lab

Cybersecurity Lab

The security of the world's information systems is not limited to websites and data storage.

Recent concerns about cyber security have even extended to ensuring biomedical devices, such as pacemakers, cannot be hacked to reduce battery life. Swinburne's Cybersecurity Lab is researching and developing technologies to protect our current and future information systems and networks on all levels: nationally and internationally for individuals, businesses and government.

Our special areas of interest include vulnerability detection, scalable trustworthy systems, combatting malware and botnets, survivability of time-critical systems, situational understanding and attack attribution, privacy-aware security, cloud security, health device security and governance over data security.

CASE STUDY

Classifying internet traffic for security applications

The sheer volume of data that requires sifting and analysis is a challenge for contemporary science. The ability to perform the fundamental tasks of analysis, processing and visualisation is becoming a key factor for competition and scientific discovery.

With internet traffic data increasing exponentially each year, traffic classification has become a fundamental approach to internet security. To defend against serious cyber-attacks and minimise their damage, this project aims to develop a set of innovative solutions relating to four key aspects.

1. Solve the real-time problem: Develop new internet traffic classification technologies that can classify complex traffic in a timely and accurate manner.
2. Solve the scalability problem: Develop new technologies for processing a large volume of traffic data to enable scalable online traffic classification.
3. Solve the robustness problem: Develop robust classification technologies that have the capability of recognising unknown traffic flows.
4. Solve the privacy problem: Develop secure classification algorithms that can protect the private information of internet users in the process of analysis.

The proposed models and techniques are important for enhancing the protection of Australian critical infrastructures against malicious cyber attacks and the work and daily lives of all Australians.

KEY CONTACTS

Professor Yang Xiang, Director of the Cybersecurity Lab, is the Chief Investigator of several projects in network and system security. His research interests include cyber security, data analytics, distributed systems, and networking. He recently led a team in developing active defense systems against large-scale distributed network attacks.

Professor Yang Xiang
T: +61 3 9214 8683
E: yxiang@swin.edu.au

Digital Research Innovation Capability Platform

swinburne.edu.au/research/our-research/digital-capability-platform/cybersecurity-lab/