EDITH COWAN UNIVERSITY

PROJECT DETAILS

Project Title:

Autonomous Red Teaming for Operational Technology (OT)

Project Summary:

This project aims to enhance the cybersecurity of critical infrastructure by utilising autonomous red teaming to protect Operational Technology (OT) environments. Given the high cost and scarcity of skilled professionals, traditional red teaming is often inaccessible for many organisations. Autonomous red teaming addresses this gap, allowing for prompt identification of vulnerabilities and enhanced resilience against sophisticated threats. By applying Machine Learning approaches such as Large Language Models (LLMs), this research will extend current industry practices, ensuring robust protection of OT systems critical to sectors like manufacturing, energy, and transportation, thereby safeguarding organisational, community, and national interests.

Preferred Applicant Skillset:

We are looking for a self-motivated PhD candidate with excellent problem-solving skills who can work independently under the guidance of the supervision panel.

Candidates must have the following attributes:

- A proven track record of publishing in reputable cybersecurity and/or machine learning journals.
- Demonstrable skills in penetration testing or ethical hacking.
- Proficiency in scripting and/or programming.

The following attributes are highly desirable but not mandatory:

- Intermediate experience/knowledge of machine learning techniques (ideally LLMs).
- Knowledge of Industrial Control Systems, SCADA, and OT environments.

Primary Contact:

Dr Ahmed Ibrahim

+618 6304 6872

ahmed.ibrahim@ecu.edu.au