CYBERSECURITY RESEARCH CENTER

ULB

PhD position on cyber-range platforms and cyber-physical security

The ULB Cybersecurity Research Center belongs to the Brussels School of Engineering and the Faculty of Sciences the Université Libre de Bruxelles.

The network research group provides broad expertise in network security and strives for innovative distributed architectures and IoT/cyber-physical security solutions. Our research is applied in a broad range of application domains, such as device authentication, smart grids, privacy-preserving internet of things, embedded systems, and blockchain applications. Our research focuses on the design, evaluation and implementation of security protocols, the development of security mechanisms for embedded systems, the design of privacy-preserving systems, and the application of machine learning for network intrusion detection. The group has the goal to cover the whole range from theoretical cryptographic protocols to the real-life internet of things in industrial systems.

ULB Cybersecurity Research is looking for motivated researchers who fit into the following profile: PhD candidate to work on the development of a hybrid cyber range platform for the evaluation of attacks on cyber-physical systems

Job description – research objectives

This PhD position is open in the domain of simulation platforms for the cybersecurity of critical infrastructures – more particularly of cyber-physical control systems (smart grids) and the Internet of Things (IoT). These systems consist of multiple connected embedded devices – and very often also legacy devices – which are used to control and monitor smart grids or industry 4.0. Obviously, security of such systems is of uttermost importance but, in practice, these systems often lack the necessary protection and are vulnerable to a wide range of attacks. Therefore, there is a need for innovative security evaluation by means of hybrid (physical and simulated elements) cyber range platform.

Cyber ranges provide a secure, managed environment for cybersecurity research, education, and cyber warfare training. Threat isolation is ensured by providing the ability to instantiate, analyse, and respond to real-world challenges in a simulated environment.

The security research will focus on the participation to the specification, development, and evaluation of a hybrid cyber range, including both risk and threat modelling as well as actual lab work. The latter includes research topics such as cyber-physical security, certification of IoT, smart grids security, secure remote monitoring and control of IoT devices, etc.

This research project will be carried out in close collaboration with multiple Universities from the Walloon and Brussels Region (UCL, UNamur, ULiège, UMons) active in cybersecurity and part of the CyberWal consortium (https://cyberwal.be) . An essential task of the researcher will be to disseminate scientific results to researchers at the national and international level. Also a non-technical audience will attend hands-on workshops for the local industry active in the cybersecurity domain.

Qualifications required

Candidates must hold a master's degree in computer science or cybersecurity, have excellent academic track records and demonstrate a keen interest in communication security and virtualization techniques. The applicant should have a practical mindset and good communication competencies.

Starting date

As soon as possible.

Equal opportunities policy

ULB's personnel management policy is geared towards diversity and equal opportunities. We recruit candidates on the basis of their skills, irrespective of age, gender, sexual orientation, origin, nationality, beliefs, disability, disorder, etc. We treat all applications confidentially.

The Brussels School of Engineering is active member of the European project CALIPER, aiming at gender equality in STEM disciplines (Science, Technology, Engineering and Mathematics). As such, the faculty implements a Gender Equality Plan to boost female researcher's role in STEM field.

How to apply

For inquiries, send an email to jean-michel.dricot@ulb.be or olivier.markowitch@ulb.be.