The Singapore University of Technology and Design (SUTD), in collaboration with Delft University of Technology and CISPA Helmholtz Center for Information Security, offers

One Postdoctoral Research Position focusing on "data-driven solutions for securing Water Distribution Systems"

The overarching goal of the project is to improve the cyber-physical security of water distribution systems through the design and implementation of simulation models and advanced data analytics. In particular, the project aims to:

- Overcome the lack of network and process data describing water distribution systems by developing digital twins (i.e., digital replicas of both physical assets and communication/control devices);
- Improve the accuracy of attack detection algorithms by harnessing the information contained in both network and process data;
- Facilitate and automate timely attack responses with the aid of (Deep) Reinforcement Learning agents.
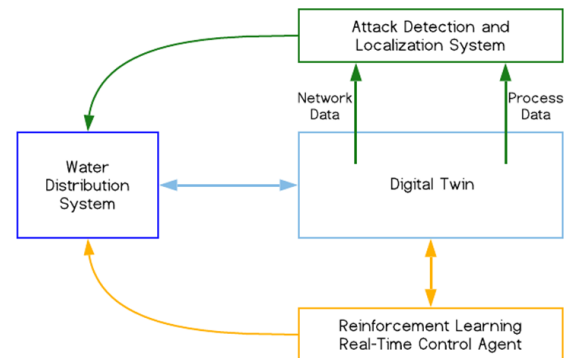
The Postdoctoral researcher will be expected to engage in multiple project themes, with special emphasis on the attack response strategies. Additionally, he/she will be expected to assist in the supervision of graduate students and undergraduate research assistants. However, he/she will not have formal teaching responsibilities. The candidate must be comfortable with both team and independent work, and possess a proven record of scientific excellence, personal initiative, and proficiency in communicating scientific findings in journals and at professional meetings. Excellent command of English is essential.

The position will be located within the Pillar of Engineering Systems Design at SUTD. The successful applicant will be offered a 2-year position and will collaborate with another Postdoc tasked with the development of the digital twin and detection algorithms. The team will be supervised by Dr. Stefano Galelli (SUTD), Dr. Riccardo Taormina (TU Delft), and Dr. Nils Tippenhauer (CISPA Helmholtz Center for Information Security).

Required qualifications:

- PhD in Civil/Environmental Engineering, Electrical/Systems Engineering, Information Technology, Applied Mathematics or equivalent disciplines;
- Research experience in either one of the following areas:
    - Modelling, optimization, and control of water infrastructure;
    - Control of cyber-physical systems;
    - (Deep) Reinforcement Learning.
- Excellent skills in programming (preferably Python). Competence in high-performance computing, cloud computing, and GPU programming (e.g., TensorFlow) is a plus.

The position is available immediately. Attractive working conditions include a competitive compensation and funding for international conferences. Applications will be evaluated until a suitable candidate is selected. Interested candidates should send a 1 page letter on why they are motivated, CV, and a list of publications to stefano_galelli@sutd.edu.sg and r.taormina@tudelft.nl.