One (1) Research Fellow (or Research Associate) Position under
Future Resilient Systems Programme – Digital Twin-Enabled System Resilience

The Singapore-ETH Centre (SEC), ETH partnering NTU, NUS, and UIUC has launched Phase II of the Future Resilient Systems (FRS II) Programme. The FRS II Programme aims to develop methods and tools to make infrastructure systems more robust and resilient.

A Research Fellow (or Research Associate) position is available at the Institute of Catastrophe Risk Management (ICRM), Nanyang Technological University, Singapore, for a project to study both the decision support and the operation control interface of the future by creating digital twins to model and simulate interdependent systems. Such an integrated digital twin-enabled analysis is the first of its kind, as existing literature still considers the physical layer (e.g., microgrids) and cyber aspects as independent problems. The scope of the research includes the development of information models along with the multiphysics models of the power systems to enable the application of digital twin-enabled resilience analysis, and the development of digital twin for vulnerability and dynamic resilience modelling and real-time simulation for power and energy systems to improve understanding of the geographical and cyber interdependencies between the cyber, microgrids, terminal, navigation, and utility systems. The application cases will likely include district energy systems and an airport.

This project is part of Phase 2 of the Future Resilient Systems research programme (https://frs.ethz.ch/), a collaboration between Nanyang Technological University, National University of Singapore, Singapore Management University and ETH Zurich. The candidate will have opportunities to interact and work with fellow researchers from these institutions housed under the Singapore-ETH Centre in Singapore. The candidate who applies for the position of Research Fellow should have a PhD degree in Building, Civil Engineering, Computer Science or Information Science, and should have experience in buildings, energy systems, simulation of complex network models, microgrids and publishing in at least one of these areas. The candidate who only has a Master degree in the aforementioned discipline is only eligible to join the project as a Research Associate and should obtain his/her PhD degree within the first year after joining the project and will be promoted to the position of Research Fellow upon receiving his/her PhD degree. The candidate should have excellent analytical and programming skills, good problem solving and organizational skills, and also strong written and oral communication skills with demonstrated ability to conduct clear presentations and prepare written reports. In addition, the candidate should be highly committed and motivated, and be able to work in a highly interdisciplinary environment.

Interested candidates should email their CV detailing academic qualifications, along with a detailed CV and list of publications to Prof Law Wing-Keung, Adrian (CWKLAW@ntu.edu.sg). The position is open until filled.