

ADSC: CREATE Programme for a Trustworthy and Secure Cyber-Plexus



Programme Leader:



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The CREATE Programme for a Trustworthy and Secure Cyber-Plexus (TSCP) started in September 2017. Funded by the National Research Foundation (NRF) under its Campus for Research Excellence and Technological Enterprise (CREATE) programme, this is a collaboration between the University of Illinois at Urbana-Champaign, and the Singapore University of Technology and Design (SUTD). The TSCP Programme is located at ADSC, the research center of Illinois at Singapore Pte Ltd, which successfully carried out two research programmes funded by Singapore's Agency for Science, Technology, and Research (A*STAR) from 2009-2017.

Research

The TSCP Programme focuses on making information systems both trustworthy, meaning they behave as expected even during disruptions, and secure, or hardened against malicious attacks. The primary focus of the TSCP Programme is critical infrastructure in the energy sector, however the technologies developed under the programme are expected to be applicable in other areas, such as transportation and the industrial internet of things. The research in TSCP will be carried out in close collaboration with SUTD, including the use of the electric power grid intelligent control (EPIC) test bed.

TSCP Programme Research Themes



Trustworthy System
Architecture



Standards, Validation,
Verification



Technology of Trust



Monitoring, Analysis,
Interdiction, and Recovery



Researchers

There are currently a total of 26 full-time research staff in ADSC, as well as 13 faculty members from UIUC and SUTD serving as Principal Investigators (PIs) for the projects in the TSCP Programme and related competitive grant projects. Illinois at Singapore (ADSC) also has administrative staff in Singapore and at the University of Illinois at Urbana-Champaign.

Highlights

In just a few years, Illinois at Singapore (ADSC) has become internationally recognized as one of the world's top research centres in information technology, data analytics, and cybersecurity. Twenty-eight best paper awards/finalists attest to the excellence of the fundamental research, and 14 contest victories/top-3 awards demonstrate the relevance of this research to challenging problems of current interest. Eighteen technology licenses (16 in Singapore) and 9 spinoff entrepreneurial ventures (8 in Singapore) represent ADSC's unparalleled contributions among international research partners to high-tech development in Singapore, and most certainly for a laboratory of its size.

Recent Publications, Awards, and Collaborations

- **Best Paper Award:** Yang Li, Rui Tan, David Yau, "Natural Timestamping Using Powerline Electromagnetic Radiation" *The 16th ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN)*, April 18-21, 2017, Pittsburgh, PA, USA. <https://adsc.illinois.edu/news/researchers-win-best-paper-sensor-networks-conference>
- **Technology License:** the Cyber Security Argument Graph Evaluation (CyberSAGE) tool. The cyber risk assessment software was licensed to a multinational electronics company in 2017; an enhanced version was subsequently licensed in 2018. <https://adsc.illinois.edu/news/cybersage-aids-security-assessment-critical-infrastructure-systems>
- **Industry Collaboration:** ADSC partnered with Nova Systems to develop an integrated safety-security engineering approach and best-practice guideline for unmanned aerial systems (UAS) in Singapore. The one year project, beginning in Q4 of 2017, is funded by the Singapore Cybersecurity Consortium via a seed grant. <https://adsc.illinois.edu/news/adsc-receives-grant-develop-uas-safety-security-guidelines>

For more information about the TSCP Programme, please
Email: enquiry@adsc.com.sg or visit: www.adsc.illinois.edu

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