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ILLINOIS LAUNCHES MAJOR CYBERSECURITY INITIATIVE IN SINGAPORE

Katie Carr, Advanced Digital Sciences Center/University of Illinois at Urbana-Champaign
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The University of Illinois has received funding for a new research program in Singapore – the CREATE Programme for a Trustworthy and Secure Cyber-Plexus (TSCP). The new initiative will work to make information systems both trustworthy, meaning it behaves as expected even during disruptions, and secure, or hardened against malicious attacks.

TSCP is funded for five years by Singapore's National Research Foundation and will focus on four main thrusts, primarily as they relate to the power grid:

- system architecture and the organization of trustworthy and secure cybersecurity components and their interactions;
- development of new hardware, software, protocols and applications;
- standards, verification and validation of components;
- and methodologies and tools to continuously monitor, detect and react to problems in real-time.

The TSCP CREATE Programme will be led by David Nicol, the Franklin W. Woeltge Professor of Electrical and Computer Engineering and director of the Information Trust Institute. Zbigniew Kalbarczyk, a research professor of electrical and computer engineering in the Coordinated Science Laboratory, will share the leadership role.

"We are looking to provide a much deeper check of what the power grid system is allowed to do and if its behavior is correct, safe, and secure, as well as develop new technology to solve security challenges," Nicol said. "We'll also be working with monitoring the information being gathered by a system to develop ways to identify the important from the unimportant."
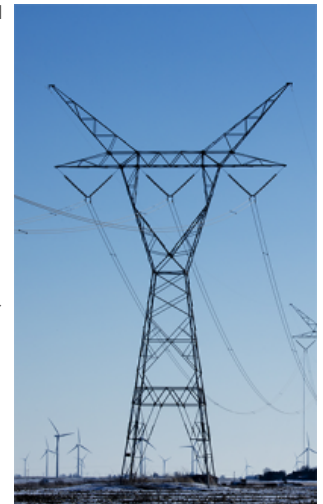
The CREATE Programme partners the University of Illinois with the Singapore University of Technology and Design. TSCP also will collaborate with the National University of Singapore (NUS), Nanyang Technological University, the Institute for Infocomm Research, and other research agencies at Singapore's Agency for Science, Technology and Research (A*STAR).

The TSCP CREATE Programme will build upon the research and relationships that were established during the past nine years in which the Advanced Digital Sciences Center has operated in Singapore. ADSC has been a top research center in information technology, data and video analytics, and smart grid cybersecurity arenas. The center was founded by the University of Illinois at Urbana-Champaign in 2009, and its researchers have received nearly 30 best paper awards, more than a dozen contest victories, 21 technology licenses, and 12 spinoff entrepreneurial ventures. ADSC's future research on cybersecurity will focus on the CREATE Programme's four main thrusts. Externally funded projects will strive to enhance and go beyond these boundaries.

"Through the leadership of ADSC Director Doug Jones and former directors Marianne Winslett and Ben Wah, ADSC became one of the premier research and innovation programs in Singapore," said Andreas Cangellaris, dean of the University of Illinois College of Engineering. "Doug was especially instrumental in creating a future home for ADSC's research in the TSCP CREATE Programme and we look forward to continuing Illinois' tradition of creating societal impact in Singapore."

CREATE (Campus for Research Excellence and Technological Enterprise) is an international research campus and innovation hub funded by NRF. CREATE programmes focus on research in human, energy, environmental and urban systems, resiliency, smart cities, sustainability, and other areas.

"As a member of the Illinois at Singapore PTE board, former Associate Director of ADSC, and an ADSC faculty member since its inception, I'm excited about the prospect of continuing ADSC's cybersecurity work and the chance for Illinois faculty to partner with additional researchers at SUTD and at other organizations in Singapore," said William H. Sanders, head of Illinois' Dept. of Electrical and Computer Engineering. "The CREATE TSCP Programme will be a great new home for ADSC."

David M. Nicol

As CREATE TSCP's director, Nicol will be responsible for leveraging Illinois' strength in cyber security and cyber resiliency in Singapore. Nicol is an ACM Distinguished Lecture and an IEEE and ACM fellow. He received the 2007 ACM SIGSIM Distinguished Contributions Award. His research focuses on modeling and simulation of large-scale systems, network security, and high-performance computing. He holds an MS and PhD in computer science from the University of Virginia and was a professor of computer science at the College of William and Mary and at Dartmouth before coming to Illinois in 2003.

"We think this is a really exciting opportunity to focus on an area we're keenly interested in and is of critical importance to Singapore," Nicol said. "We're looking forward to leveraging the research that's done in Illinois to enhance the research done in Singapore and using what we glean in Singapore to aid our research in Illinois. We see Singapore as a very promising testbed where we can test systems and scale ideas in ways we can't in the United States. Illinois is excited to look forward into the next five years with NRF as our sponsor, SUTD as our collaborator, and Singapore as our continued place of research."

ADVANCED DIGITAL SCIENCES CENTER

ADSC is a research center of Illinois at Singapore Pte. Ltd., an affiliate of the University of Illinois

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