

## **Seminar Talk**

**Sachin Shetty, Ph.D.**

**Associate Professor**

**Department of Modeling, Simulation & Visualization Engineering  
Old Dominion University**

**Tuesday, August 29, 2017**

**3:00 p.m. KH 224**

**Title:** Security Risk Metrics for Cyber Insurance.

**Abstract:**

Developing a protocol to maintain business continuity and to recover expeditiously from a cyber loss requires a comprehensive ex-ante assessment of the cyber risks posed by an entity's cyber infrastructure. Cyber insurance has been recognized by researchers as an effective way to improve resilience because it speeds up the process of recovery from financial losses and helps insured entities resume daily operations swiftly after cyber incidents. It also serves as a complement to self-protection as it creates financial incentives for the insured to mitigate cyber-risks in their systems. The cyber insurance market is premised on being able to develop a comprehensive understanding and assessment of cyber risk, including technological risk and portfolio risk. In this talk, I will present economic modeling and risk assessment techniques to measure and price risk for cyber insurance. The talk will focus on the need for cyber security metrics for computer systems and networks. The availability of cyber security metrics help organizations develop a prioritized mitigation plan. The topics will include system and network vulnerability scanning, vulnerability databases, security risk modeling, and quantifying threat impact. I will also provide an analysis of the relevant breach-related data based on an exhaustive database of cyber incidents to better assess risk in model portfolios of cyber policies. Ultimately, the analysis will help improve insurance coverage for cyber losses and help insurers design more affordable cyber-insurance products. A demonstration of an automated cyber risk measurement tool will conclude the talk.

**Bio:**

Dr. Sachin Shetty is an Associate Professor in the Modeling, Simulation and Visualization Engineering at Old Dominion University. He also holds a joint appointment with the Virginia Modeling, Analysis and Simulation and Center and a dual appointment as an Engineer at the Naval Surface Warfare Center, Crane Indiana. He received his PhD in Modeling and Simulation from the Old Dominion University in 2007. His research interests lie at the intersection of computer networking, network security, and machine learning. His laboratory conducts cyber security risk and resilience research and has received over \$10 million in funding from National Science Foundation, Air Office of Scientific Research, Air Force Research Lab, Office of Naval Research, Department of Homeland Security, and Boeing. He is also site lead on the

Department of Homeland Security Center of Excellence in Critical Infrastructure Resilience Institute (CIRI), Department of Defense, Center of Excellence in Cybersecurity, and Department of Energy, Cyber Resilient Energy Delivery Consortium (CREDC). He has authored and coauthored over 125 research articles in journals and conference proceedings and two books. He is recipient of DHS Scientific Leadership Award and has been inducted in Tennessee State University's million dollar club.