Invited Speaker, November 20: Dr. Alexander Kott

The Unbearable Lightness in the Meaning of Cyber Risk

The term "cyber risk" aims to characterize a variety of phenomena where information assets are subject to a potential damage due to cyber attacks. Many attempts, almost unblemished by success, have been made to define cyber risk. In this talk we explore why the concept of cyber risk, as treated by both practitioners and researchers of cyber security, is largely inconsistent with definitions of cyber risk commonly offered in the literature. Unsurprisingly, an adequate ontology of cyber risk is lacking, and a rigorous re-conceptualization of cyber risk is needed.

A new formal treatment of cyber risk that should include an ontology of cyber risk-related concepts, a rigorous mathematical model, and practical definitions, all of which must align with common sense perceptions of cyber risk by cyber security practitioners. Furthermore, cyber risk belongs firmly to the realm of adversarial decision-making and has little meaning outside of a process geared toward decisions made under extreme uncertainty, time pressure, and under threat of an adversarial actions pre-empting and counteracting those of the defenders. Modeling of risk must be adversarial in nature, with game-theoretic and decision-theoretic perspectives duly considered. And to add to the confusion, we must discuss how inseparably connected yet different are cyber risk and cyber resilience.

Biography: Dr. Alexander Kott

Dr. Alexander Kott serves as the Chief, Network Science Division, Army Research Laboratory headquartered in Adelphi MD. In this position, he is responsible for fundamental research and applied development in performance and security of both tactical mobile and strategic networks. He oversees projects in network performance and security, intrusion detection, and network emulation. Research under his direction brings together government, industry and academic institutions working toward a fundamental understanding of interactions, interdependencies, and common underlying science among social/cognitive, information, and communications networks, including science for cyber. Prediction and control of the composite behavior of these complex interacting networks will ultimately enhance their effectiveness and security.

Between 2003 and 2008, Dr. Kott served as a Defense Advanced Research Programs Agency (DARPA) Program Manager responsible for a number of large-scale advanced technology research programs. His earlier positions included Technical Director with BBN Technologies, Cambridge, MA; Director of R&D at Logica Carnegie Group, Pittsburgh, PA; and IT Research Department Manager at AlliedSignal, Inc., Morristown, NJ. Dr. Kott received the Secretary of Defense Exceptional Public Service Award and accompanying Exceptional Public Service Medal, in October 2008.

He earned his PhD from the University of Pittsburgh, Pittsburgh PA in 1989; published over 80 technical papers; and co-authored, and edited nine technical books. Dr. Kott and his family reside in Silver Spring, Maryland. He can be reached at alexkott@yahoo.com.