Research Overview of the Digital Forensics and Control System Security Lab at Louisiana Tech University

Speaker: Dr. Travis Atkison, *Louisiana Tech University*

Date and Time: January 9 (Friday), 2015 - 2:00pm-3:00pm

Location: 3437 SEC

Abstract:

This presentation will focus on the research and outreach programs of the Digital Forensics and Control Systems Security Lab (DCSL) at Louisiana Tech University. DCSL has and continues to work on a number of projects and outreach activities all of which are centered on the common goal of securing and developing a greater understanding of cyberspace. Three main threads DCSL researchers are currently focused on are *rogue application detection*, *digital forensics*, and *industrial control systems.*

In rogue application detection, DCSL researchers have and continue to develop novel approaches based on machine learning and information retrieval techniques to detect the presence of malicious software without the use of signature---based libraries.

In digital forensics, DCSL is researching and developing innovative ways to examine digital evidence. Two main threads are virtual forensics and solid state drive forensics. DCSL researchers have the equipment and expertise to duplicate, process, and analyze most types of digital evidence including computers, tablets, and cell phones and have done so for several local law enforcement agencies.

In industrial control systems, DCSL is currently working on systems that can recognize intrusions and isolate them at the control level, effectively preventing most attacks from occurring or at the very least minimizing the damage caused by the attack, consequently adapting and training the system to avoid the threat.

This presentation will discuss additional aspects of DCSL including outreach activities and a new problem of threat avoidance. Threat avoidance is an area where we are developing effective ways of addressing cyber threats before they are embedded on the target.

Biography:

Dr. Travis Atkison is the Program Chair of Cyber Engineering and an Assistant Professor of Cyber Engineering, Computer Science at Louisiana Tech University. He is a member of the Center for Secure Cyberspace (CSC) and the director of the Digital Forensics and Control System Security Lab (DCSL) at Louisiana Tech. His current research efforts focus on the topic of cyber security. These efforts include malicious software detection, security in SCADA environments, threat avoidance and digital forensics. Prior to joining the faculty at Louisiana Tech University, Dr. Atkison spent 7 plus years at the National Security Agency in both the Signals Intelligence and Information Assurance Research Directorates. His work there spanned a wide range of topics, including computer security using both static and dynamic methods, information assurance, network security, intrusion detection, information retrieval, data mining, distributed data mining, ensemble and hierarchical modeling, and architecture and application development.