Announcing the Final Examination of Tyrone Trapnell for the degree of Master of Science

Time & Location: April 3, 2019 at 10:00 AM in P3 116
Title: FEDERAL, STATE AND LOCAL LAW ENFORCEMENT AGENCY INTEROPERABILITY CAPABILITIES AND CYBER VULNERABILITIES

The National Data Exchange (Nâ€™DEx) System is the central informational hub located at the Federal Bureau of Investigation (FBI). Its purpose is to provide network subscriptions to all Federal, state and local level law enforcement agencies while increasing information collaboration across all domains. The National Data Exchange users must satisfy the Advanced Permission Requirements, confirming the terms of Nâ€™DEx information use, and the Verification Requirement (verifying the completeness, timeliness, accuracy, and relevancy of Nâ€™DEx information) through coordination with the record-owning agency (Management, 2018). A network infection model is proposed to simulate the spread impact of various cyber-attacks within Federal, state and local level law enforcement networks that are linked together through the topologies merging with the National Data Exchange (Nâ€™DEx) System as the ability to manipulate the live network is limited. The model design methodology is conducted in a manner that creates a level of organization from the state level to the local level of law enforcement agencies allowing for each organizational infection probability to be calculated and entered, thus making the model very specific in nature for determining spread or outbreaks of cyber-attacks among law enforcement agencies at all levels. This research will enable future researchers to further develop a model that is capable of detecting weak points within an information structure when multiple topologies merge, allowing for more secure operations among law enforcement networks.

Major: Modeling and Simulation

Educational Career:
Bachelor's of Criminal Justice, BS, 2007, Kutztown University of Pennsylvania
Master's of Administration of Justice and Security with a concentration in Law Enforcement Organizations, MS, 2015, University of Phoenix

Committee in Charge:
Bruce Caulkins, Chair, Institute for Simulation and Training
Patricia Bockelmann, Modeling and Simulation
Matthew Canham, Modeling and Simulation
R. Paul Wiegand, Modeling and Simulation

Approved for distribution by Bruce Caulkins, Committee Chair, on March 12, 2019.

The public is welcome to attend.