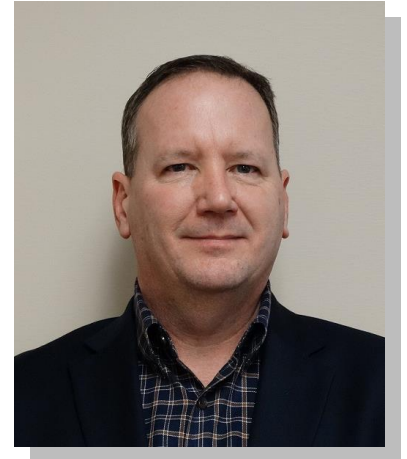# CoCo Seminar Series
Spring 2017

An Epidemiological Model for Control of Complex Systems via Information-Sharing: Opportunities for Research

Dr. John Bay
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Thomas J. Watson School of Engineering and Applied Science
Binghamton University

Wednesday January 25th, 2017
8:30-9:30am   Engineering Building H-9
(Knoll-MacDonald Commons / Watson Commons)

With the advent of data analytics, methods for the modeling and control of complex systems are available for an increasing number of application domains. This talk will draw analogies between three of those domains, the epidemiology of infectious diseases, the spread and control of computer malware, and the generation of optimal public policy. Although there are significant underlying differences in the dynamic models of each of these complex systems, the use of a data-centered approach is allowing us to develop models for decision-making in each domain that draw from our experience in the other domains. In this talk, I will explore development of a shared-data approach to cybersecurity based on the principles of public health. I will explain how such data-centric models offer advantages over more dynamics-based approaches, and in particular, how this approach is changing the field of cybersecurity. I will also discuss how data-centric models are able to influence public policy, and the potential for additional research in this area here at Binghamton University.

John Bay is currently Associate Dean for Research and Graduate Studies at the Watson School. Prior to joining Binghamton University in 2016, he was Executive Director of the Cyber Research Institute in Rome NY, Chief Scientist of AIS, Inc, Chief Scientist of the AFRL Information Directorate, DARPA Program Manager, Engineering Fellow at the Raytheon Company, and a professor of ECE at Virginia Tech. His research has spanned robotics, control theory, artificial intelligence, autonomous systems, and cybersecurity. He is a Fellow of the IEEE for his contributions to model-based embedded systems design.

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