

## COMPUTER SCIENCE RESEARCH SEMINAR

Advanced Machine Learning Research for Cyber Security

**Dr. Robert “Bob” Wright**  
**Assured Information Security**

**Friday, November 9 at noon in room R15, Engineering Building**

**Abstract:** Machine learning (ML) is an amazing enabling technology revolutionizing many problem domains including cyber security. This talk will cover two distinct research projects using ML to provide game-changing capabilities for cyber security. These projects are in the areas of biometric verification and covert communications. Biometric verification is the process of using observed biometric data, such as keystrokes or gait data, to uniquely identify and verify a user’s identity. This talk will describe and discuss a novel general purpose framework using deep learning that can accomplish this task on multiple modalities of biometric data with higher accuracy and reduced data requirements than prior methods. In the area of covert communications, this talk presents a novel medium agnostic approach for steganographic communications using Generative Adversarial Networks (GANs).

**Bio:** Dr. Robert “Bob” Wright is a senior advising research scientist for the Advance Research Concepts (ARC) division at Assured Information Security (AIS) in Rome, NY. He received his Ph.D. in computer science from Binghamton University in 2014 for his work in developing reinforcement learning algorithms that learn efficiently from experience. His work has been published in many top tier scientific venues and was awarded “Best Paper” at the 2013 European Conference on Machine Learning. Prior to AIS, Dr. Wright was a research scientist with the AFRL and co-lead for the Autonomy Community of Interest: Machine Perception Reasoning and Intelligence technical challenge area for the Office of the Secretary of Defense. In his 13 years with AFRL, he led several research efforts in machine learning and autonomous systems. Dr. Wright’s research interests and areas of expertise include reinforcement learning, deep learning, data mining, biometrics, multi-agent systems, and genetic algorithms.

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**Refreshments will be provided!**