# CAE Lecture Series

## 18 September 2025

### (1-2pm EST)

**1pm EST: Dr. Cheng Qian, Hood College, Foundation of Secured Edge Intelligence in CPS**

Mark your calendars and come join your colleagues in the CAE community for the CAE Lecture Series!

CAE Lecture Series are free and conducted live in real-time over MS Teams so no travel is required. NSA's CAE PMO office hosts the presentations via MS Teams which employs slides, VOIP, and chat for live interaction. Just click on the link and enjoy the presentation(s).

**Bio:** Dr. Cheng Qian is an Assistant Professor of Computer Science and Information Technology at Hood College, where he also serves as the Interim Program Director of Cybersecurity and faculty coach for Hood's Cyber Blazers team. He earned his Ph.D. in Information Technology from Towson University. His research interests span the Internet of Things (IoT), cybersecurity, machine learning, and computer networks.

**Abstract 1 pm EST:** The rapid integration of Internet of Things (IoT) devices, edge computing, and artificial intelligence has given rise to cyber-physical systems (CPS) that are reshaping modern industries and daily life. While these systems provide efficiency and intelligence at the edge, they also introduce new layers of complexity and vulnerability. Challenges arise not only from inherent factors such as heterogeneous hardware, uneven data distribution, and limited network resources, but also from intentional threats, including data manipulation, model corruption, and privacy breaches.

This talk begins with an overview of the distributed learning process in CPS and explores how both natural and adversarial uncertainties can undermine its stability. It then reviews existing approaches to mitigate these risks, highlighting trade-offs between robustness, efficiency, and privacy. The presentation concludes by discussing future opportunities for building secure and trustworthy edge intelligence, with particular attention to evolving network infrastructures and the growing demand for resilient, adaptive solutions.

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**Note: This Lecture series cannot be recorded/posted online, we encourage you to attend live.**