

**Title:**

Resilient and reconfigurable networked control systems

**Presenter:**

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**Abstract:**

In this talk we will discuss how to design control systems in an adversarial and uncertain cyber environment. We will introduce weak resilience to denote when a networked control system is able to maintain stability in the presence of certain undesirable incidents on local controllers. We first derive a necessary and sufficient condition for weak resilience of networked control systems. As systems do not generally satisfy this condition, we provide a method for designing a compensator which ensures weak resilience of the compensated system. Finally, we illustrate the efficiency of the proposed method by a power system example based on the IEEE 14-bus test system. The talk is based on joint work with Tomonori Sadamoto, Henrik Sandberg, Bart Besselink, Takayuki Ishizaki, and Jun-ichi Imura.