

عنوان مقاله:

Protecting Cyber Physical Systems against Malicious Intruders: A General Detection and Compensation Strategy

محل انتشار:

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خلاصه مقاله:

Cyber-Physical Systems (CPS) are playing important roles in our critical infrastructure now. A prominent family of CPSs are networked control systems in which the control and feedback signals are carried over computer networks like the Internet. Communication over insecure networks makes system vulnerable to cyber attacks. In this paper, we present a general intrusion detection and compensation framework based on system/plant identification. This framework can be used to capture not only normal intrusions, but also the covert ones. A covert CPS attack tries to manipulate the system output through the network interfaces in a way that the changes are imperceptible to human eyes. As realization instances of the proposed framework, a collection of previous research outputs on different plants ranging from DC motor to adaptive car cruise control (ACC) will be discussed. Additionally, we mention some simple compensation strategies and show how they can be useful in alleviating the attack effects.

کلمات کلیدی:

Cyber Physical Systems, Networked Control Systems, Intrusion Detection, Covert Attacks

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