



Lehrstuhl für Sicherheit in der Informatik
Prof. Dr. Claudia Eckert



*Announcement of a Bachelor or Master Thesis
in Cooperation with Fraunhofer AISEC, Garching*

Hardware-in-the-loop with industrial manufacturing devices for security evaluations

Motivation

Cyber-physical systems are used increasingly in industrial settings such as shopfloor manufacturing. These next-generation automation components introduce additional attack vectors due to their interconnection with traditional IT systems and the Internet. Attacks are feasible and have been conducted in the past, for example, Stuxnet or the attack on the German steel mill in 2014.

Task Description

To highlight the vulnerabilities of modern industrial components, a real-world setup of manufacturing equipment is to be transferred into a computer model. This digital twin is to be implemented in the Robot Operating System (ROS). As an intermediate result, the developed solution needs to be capable of interacting with real-world device (hardware-in-the-loop).

Requirements

- Deep practical experience with Linux
- Good practical programming skills
- Experience with robotics and ROS is beneficial

The tasks also can be conducted as paid assistant work *instead* of a final year project.
Date of announcement: 3rd November 2016, begin of work possible as of now.

Contact

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