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Enabling Secure Communication for Cyber-Physical Processes in Critical Infrastructures

Machine-to-machine communication over wireless networks is increasingly adopted to improve service and maintenance processes at airports, ports, and manufacturing plants. This brings with it the challenge of how to bootstrap a secure communication channel between the machines involved. Building on the idea of secure device pairing we research novel schemes for key establishment that exploit the proximity of the machines, the physical presence of a human or robotic operator, and/or the physical characteristics of the process. This approach allows us to engineer for post-quantum resistance as well as resilience against multi-instance attacks. To meet current safety and security norms we also provide the methodology to formally capture and verify the corresponding requirements.

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1,2, falls relevant auch 3,4

Keywords

Cyber-physical systems,
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Autor: Prof. FRÖSCHLE, Sibylle (Technische Universität Hamburg)

Co-Autor: Herr WOLTERS, Philipp (Technische Universität Hamburg)