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KOLLOQUIUM

Predictability and Security for Cyber-Physical Systems

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Many of today's cyber-physical systems (CPS) are subject to, mission-critical control requirements, from power grids to autonomous, driving.   This talk highlights methods to provide non-traditional, security and end-to-end timing predictability in such systems.

Security in real-time CPS has been an afterthought, even though such, systems are networked.   To complement conventional cyber security, techniques , we present three mechanisms for time-based intrusion, detection exploiting information obtained by static timing analysis.

End-to-end timing predictability, required for mission-critical, systems, presents another challenge for CPS. We show how, software-defined networking (SDN) opens up new opportunities to create, a complete software stack in support of end-to-end timing bounds on, communication that includes middleware, end nodes, and network, switches to give assurances for real-time schedulability and, resilience.

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Donnerstag, 20.12.18, 10:00 Uhr

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