

## Common RTOS-related bugs – How avoid and detect?

**Name** Johan Kraft

**Abstract text** Real-time operating systems (RTOS) are increasingly common in embedded software due to increasingly complex and connected applications. But RTOS means multi-threading, that introduce new types of problems related to timing, synchronization and resource usage; elusive bugs that are often slip out into production code.

The first part of this talk will discuss common RTOS-related problems, why they occur and “best practices” in embedded software design for avoiding them. The second part will present techniques for detecting several kinds of RTOS-related problems and how visualization can facilitate analysis and debugging of such issues.

The presented approach allows for continuous monitoring over many days or weeks of testing, without a noticeable overhead. This is enabled by the recent years advances in hardware-accelerated event tracing, that allows for efficient, continuous streaming of event data using standard hardware.