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THE CENTER OF COMPUTER SCIENCE

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– Inaugural Lecture –

Assistant Prof. Dr.-Ing. Steffen Bondorf

Assistant Professorship for Distributed and Networked Systems

Faculty of Mathematics

"Performance Verification in Deterministic Networking"

Abstract

Modern safety-critical systems are composed of distributed applications running on some kind of networking infrastructure. Examples are steer- or break-by-wire in aircraft or factory automation systems controlling robot arms. Certification of such systems demands the provision of guarantees on timely control data delivery. These domains have been developing their real-time networking solutions for decades. Yet today, these industries converge to common standards based on well-known Ethernet technologies.

Given that there is a technological convergence, the search for a common methodology for verification of network performance is complementary. For certifying their novel shared-access avionics networking technology, Airbus employed the so-called Network Calculus (NC). The NC framework consists of two parts, network modeling and network analysis -- given a network model, an analysis can compute a deterministic bound on any data flow's worst-case end-to-end delay. Both parts of the framework should ideally evolve in lockstep with technological progress. This is, unfortunately, not at the case. This talk provides an overview on recent developments in deterministic networking standards, their analysis with Network Calculus and Steffen Bondorf's research on this topic.

When? 10th of February 2021, 04:00 PM

Where? Via Zoom (Meeting-ID: 949 6884 3467, Password: 540950)

Anyone interested is warmly welcome to the lecture. No registration is necessary.
We are looking forward to your participation!