CECS Seminar

"Requirements and Applications of Cloud-based Services within the Automotive Edge"

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Friday, July 14th
10:00-11:00 a.m. PST
Location: EH 2430

Abstract: The architectures in today's vehicles are usually still based on decentralized or domain-centric architecture concepts that place a strong focus on individual control units. New applications and services, which may only be used or required temporarily, are very difficult to implement with these vehicle architectures. This applies in particular when external data sources and services are also involved, e.g. a bidirectional exchange of information between vehicles and their infrastructure. The dynamic adaptation to new circumstances, such as the availability of new data sources or the use of specific vehicle functions by third-party applications, is hardly or not at all feasible here. These concepts are being investigated in the GAIA-X4AGEDA joint research project, which aims to develop a software architecture in the edge device vehicle that makes use of the concepts of the cloud initiative "GAIA-X" and "by-design" data-driven applications and the dynamic adaptation of a vehicle with its functions over the entire life cycle of the vehicle. The modeling of this approach with digital twins plays a central role here, on the one hand to be able to show early statements about characteristics such as real time etc. and on the other hand to make predictions about the state of the system.

Biography: Prof. Dr. Achim Rettberg works since December 2017 as Professor for Human Machine Interface Technologies at University of Applied Science Hamm/Lippstadt. Previously, he worked since end of 2014 for HELLA as Methodology expert and for inventing a PhD program. Furthermore, he is still extraordinary Professor at Carl von Ossietzky University Oldenburg. He received his M.S. (Dipl.-Inform.) in computer science and economics in 1997 and his Ph. D. (Dr. rer. nat.) degree in 2006 from the University of Paderborn, Germany, where he studied computer science and economics. He worked from 2007 until 2008 as Post-Doc at C-LAB and managed EU-Projects. In 2008 he became professor of complex integrated systems/embedded systems at the Computer Science department at Carl von Ossietzky University Oldenburg. Prof. Rettberg is founder and General Chair of the International Embedded Systems Symposium (IESS). He is chair of the IFIP working group 10.2 for Embedded Systems still April 2012 and chair of IFIP TC 10 Computer Systems Technology since October 2019. Since September 2022 he is member of the IFIP board. His general research interests are real-time systems and HW/SW architectures. His current focus lies on design methods, optimization for embedded systems and architectures, and for human machine interface technologies for embedded devices.

Hosted By: Prof. Nikil Dutt