**Institut für Angewandte Informatik
und Formale Beschreibungsverfahren**

"All models are wrong, but some are useful"
George E. P. Box
British statistician, referred to as "one of the
great statistical minds of the 20th century"

Modeling, Simulation and Data

**Sanja Lazarova-Molnar
Associate Professor, Ph.D.
University of Southern Denmark, Odense**

Modeling and Simulation (M&S) methods have long been in use for understanding behaviors of systems, as well as for supporting decision-making processes. The traditional way of doing M&S relies to a great extent on expert knowledge, and corresponding models and simulations often become obsolete soon after they are developed. This is due to the natural changes in the systems. The nowadays prevalent availability of data has the potential to change this fact.

Thus, is there a way to develop better and more resilient models and simulations that will update themselves along with the real systems? Even more, can we have models being directly extracted from real systems? How can we minimize the dependence on expert knowledge and is that even possible? To what extent?

The talk will address the use of M&S for analysis of Cyber-Physical Systems, with a special focus on Reliability Modeling and the use of data to enhance M&S processes.

Sanja Lazarova-Molnar is an Associate Professor with the Faculty of Engineering at the University of Southern Denmark, researching in the areas of Modeling and Simulation, and Data Analytics, in various decision support contexts. Sanja is a Senior Member of IEEE, and currently serving as Director-at-Large on the Board of Directors of The Modeling & Simulation International (SCS). Furthermore, she is Chair of IEEE Denmark Women in Engineering Affinity Group. She is also one of the Proceedings Editors for the Winter Simulation Conference 2019. As of latest, her focus is on the data-based reliability modeling and analysis of cyber-physical systems, such as manufacturing systems and smart buildings. Sanja completed her PhD in 2005 at the University in Magdeburg, specializing in the area of Modeling and Simulation. During her PhD, she developed and formalized new simulation method, i.e. the proxel-based method. The proxel-based method was implemented in the DaimlerChrysler simulation tool and it was superior to discrete-event simulation for certain classes of problems, such as warranty analysis. Sanja is author of more than 90 papers published in international conferences, books and journals.

Termin: **Mittwoch, 5. Februar 2020, 10:00 Uhr**
Ort: Kaiserstr. 89, 76133 Karlsruhe
               Kollegiengebäude am Kronenplatz (Geb. 05.20), 1. OG, Raum 1A-11
               (Hinweise für Besucher: www.aifb.kit.edu/web/Kontakt)

Zu diesem Vortrag lädt das Institut für Angewandte Informatik und Formale Beschreibungsverfahren alle Interessierten herzlich ein.

A. Oberweis, H. Sack, A. Sunyaev, Y. Sure-Vetter, M. Volkamer, J. M. Zöllner