

# **Software Engineering Challenges in Industry 4.0**

Bedir Tekinerdoğan

Chair Information Technology Group, Wageningen University  
Wageningen, The Netherlands

The rapid progress and evolution of computing with smart devices that can be connected over an advanced IT infrastructure with internet services has led to a world in which ubiquitous computing has become a reality. The massive digitization and interconnection of devices will bring about a radical transformation of the world in which we live and work. We are now witnessing the start of the Fourth Industrial Revolution, or Industry 4.0, in which the physical world and the virtual world (cyberspace) is being more and more converged in the form of Cyber-Physical Systems (CPS). Cyber-physical systems monitor physical systems, communicate and cooperate with each other and with human beings in real time, and make decentralized intelligent decisions. Traditionally, the enabling force behind intelligence is the software that operates and controls the overall system. With Industry 4.0 the role of software, and herewith software engineering, has gained even further momentum and become a critical core competence for developing and maintaining smart interconnected systems. In this talk I will briefly present the transitions from Industry 1.0 to Industry 4.0, and discuss the role of software engineering and the challenges in Industry 4.0.