

Department of Electrical and Computer Engineering

Title: «*Event-based networking for efficient Internet of Things*»

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Room E116, Old Campus - University of Cyprus

Abstract:

Event-triggering (ET) is an up-and-coming technological paradigm for monitoring, optimization, and control in the Internet of Things (IoT). This highly-flexible paradigm is well-suited to a plethora of IoT applications for which operational efficiency is currently the primary design requirement. This presentation first defines the envisioned event-triggering architecture for the IoT domain. It then classifies and reviews the various different event-triggering approaches obtained from the available literature for the three phases of ET, namely behavior modeling, event detection, and event handling. Thereafter, a novel data-driven technique is developed to address all three phases of ET in an efficient and reliable manner and the networking aspects of this mode of operation are investigated. The applicability of the proposed data-driven technique is demonstrated in a real-world public transport scenario, demonstrating a substantial improvement in energy and spectrum efficiency compared to existing periodic techniques.

Biography:

Panayiotis Kolios received his BEng degree in Telecommunications Engineering from King's College London in 2008. He then joined the Centre for Telecommunications Research at King's College as a PhD student, funded by an EPSRC DTA scholarship. During his doctoral training studies, he worked on energy efficient wireless networking architectures; contributing to the Mobile VCE Green Radio project. He was awarded the Ph.D. degree on 2012. Subsequently he joined the Department of Communications and Internet Studies at the Cyprus University of Technology where he conducted research on the development of terrestrial maritime communications as a low-cost alternative (to satellite links) solution to support Internet-like services over the sea. He then joined the Department of Computer Science (CS), University of Cyprus (UCY) as a visiting lecturer and conducted research on new ad hoc networking methods for device-to-device communication. Since June 2013 he is a member of the KIOS research centre at UCY where he continues his research explorations in the fascinating areas of mobile computing, mobile Internet and interconnected intelligent systems. Some examples of systems that fall into the latter category include intelligent transportation systems, unmanned aerial systems and the plethora of systems that arise within the Internet of Things. Particular emphasis is given to optimization strategies for efficient monitoring and control of these systems; with expertise offered on optimal and heuristic algorithmic development, mathematical and dynamic programming, as well as combinatorial optimization.