CARL VON OSSIETZKY universität OLDENBURG

Fakultät II   *Informatik, Wirtschafts- und
Rechtswissenschaften
Department für Informatik*

Internes Kolloquium

Am **Montag,** den **07. März 2016,** um **16:15 Uhr** hält

Saifullah Khan
Universität Oldenburg

im Rahmen seiner beabsichtigten Dissertation einen Vortrag mit dem Titel

Geometry-Predicting Communication Protocols for Car2X Applications

Der Vortrag findet im OFFIS, Escherweg 2, Raum F02 statt.

Abstract:

Vehicular Ad-hoc Networks (VANETs) have a broad range of applications that varies from safety applications to comfort systems. Such networks hold unique characteristics induced by their application domain that necessitate their study from a substantially different perspective and with respect to other design goals than the prevailing paradigm for conventional mobile ad-hoc networks. The international standard IEEE 802.11p defines the low layer protocols for VANETs aiming at support for Intelligent Transportation System (ITS) applications. Complementing this standard, we argue that the Network Layer and the MAC Layer are of crucial importance to reliability, availability, and performance of VANET communication. Addressing this issue, we propose a novel routing protocol called Traffic Aware Segment-based Routing (TASR) protocol, which is a multi-hop routing protocol specifically designed for the challenges of urban environments with their complex and dynamically changing topologies due to ubiquitous occlusions and, relatively to the reach, high agent mobility. Reflecting this network dynamics and its consequential channel access and window contention among the set of possible relay nodes, we propose a Cooperation and Network-Coding based Medium Access Control (CNC-MAC) extending IEEE 802.11 to improve the network throughput and the transmission reliability by allowing intermediate relay nodes to combine received packets. Furthermore, as IEEE 1609.4 defines a MAC layer implementation for multichannel operations in VANET, we add a novel Multi-Channel Mode (MCM-MAC) protocol for emergency systems to improve the channel utilization of the control channel (CCH) and uniformly distribute the channel load on service channels (SCHs). In the proposed protocol, subnetworks change their modes from general to emergency mode to increase the probability for an urgent, time and safety-critical message to arrive in time.

Betreuer: Prof. Dr. Martin Fränzle

Weitere Kolloquiumstermine sind im WWW abrufbar.