

Robust Mid-range Communication in Urban VANETs

Saifullah Khan, Martin Fränzle

Carl von Ossietzky University of Oldenburg, Germany

saifullah.khan | fraenzle@informatik.uni-oldenburg.de

Abstract—Cooperative driving and the associated need for vehicular communication motivate vehicular ad-hoc networks VANETs). One major challenge is to provide for robust communication — in spite of highly dynamic topologies and the presence of shielding obstacles — without installing extra relay infrastructure. Traffic-density information and density estimation schemes are a valuable asset to approach this challenge. In this light we propose a novel routing protocol. Furthermore, extensive simulations are provided to support our case.

(Pt9)Keyword—Vehicular ad-hoc networks (VANETs); Robust communication; Routing protocols; Traffic awareness



Saifullah Khan is a Ph.D. candidate in Department of Computer Science at Carl von Ossietzky University. He received his Bachelor Degree in Computer Science from University of Malakand, Pakistan in 2008. He received Master course work certificate as an exchange student in 2011 from University of L'Aquila, Italy. He also received his Master of Engineering Degree by research in 2013 from Department of Informatics, Gyeongsang National University, South Korea. His research interests include wireless and mobile networks, aeronautical ad-hoc networks, protocols design, VANET's cooperative communications, realistic simulation and modeling, and novel distributed applications.



Martin Fränzle studied computer science, mathematics, and logics at Kiel University, where he received a diploma degree in computer science in 1991 and a doctoral degree (Dr. rer. nat.) in 1997. He has been an associate professor at the Technical University of Denmark from 2002 to 2004 and holds a professorship in technical computer science at Oldenburg University since 2004. He is member of the board of the Interdisciplinary Research Center for Safety-Critical Systems at Oldenburg University, of the board of the Transregional Collaborative Research Center Automatic Analysis and Verification of Complex Systems (AVACS, funded by the DFG as SFB-TR 14), of the board of the Research Division Transportation at OFFIS, and is co-speaker of the Graduate School System Correctness under Adverse Conditions (SCARE, funded by the DFG as DFG-GRK 1765). His research interest is in safety analysis techniques for cyber-physical systems and for automated driving functions in the automotive domain. He has worked extensively on modeling, verification, and synthesis of reactive, real-time, and hybrid discrete-continuous dynamics in embedded and cyber-physical systems.