

Invited Talk

Evaluating Cooperative ITS Applications for Sustainable and Safe Mobility with iTETRIS*

Jérôme Härrri

EURECOM[†]

Mobile Communications Department
06904 Sophia-Antipolis, France
jerome.haerri@eurecom.fr

ABSTRACT

We see today urban traffic growing faster than the capacity of road infrastructures and posing a challenge to traffic safety and to the sustainability of our mobility. In this context, cooperative mobility strategies are expected to become a key enabler for a better usage of the available road infrastructures. Considering the estimation by the American Automotive Association of the yearly cost of traffic safety to 160 billion USD, or the yearly cost of traffic congestion to 50 billion EUR by the European Commission, local road authorities are facing a strategic challenge to develop and propose cooperative ITS applications to the public.

The question is how can the actual worth of investment and effectiveness of cooperative ITS applications on city road traffic be estimated? To answer this question, new tools capable of providing realistic and large scale assessments and guidelines to road authorities are required. To this aim, we need to define an extensible architecture allowing the interactions of realistic models spanning from wireless communication to traffic and mechanical engineering, and provide a modular integration methodology of cooperative ITS applications.

In this talk, we present the outcome of the recently completed work of the European FP7 project iTETRIS during which an open, ETSI standard compliant, and flexible ITS simulation platform has been developed. We describe the modeling challenges, design choices, selected scenarios, and illustrate the benefits and functionalities of the iTETRIS platform through the integration of exemplary key cooperative ITS applications. We further discuss future evolutions,

*This work has been partly funded by the European Commission through FP7 ICT Project iTETRIS: An Integrated Wireless and Traffic Platform for Real-Time Road Traffic Management Solutions (No. FP7 224644). The author wishes to acknowledge the Commission for their support, as well as all project members for their technical involvements and fruitful suggestions in the content of this talk.

[†]EURECOM industrial members: BMW Group, Cisco, Monaco Telecom, Orange, SAP, SFR, STEricsson, Swisscom, Symantec, Thales.

trends, and potential roles of simulations and the iTETRIS platform to reach sustainable and safe mobility resulting in economical, social and ecological wealth improvements.

Categories and Subject Descriptors

I.6.5 [Simulation and Modeling]: Model Development—*Modeling methodologies*; H.4.3 [Information Systems Applications]: Communications Applications

General Terms

Design, Performance, Algorithms

1. BIOGRAPHY

Jérôme Härrri is an Assistant Professor at the Mobile Communication Group at EURECOM, France, and conducting research in wireless vehicular networks. Previously, he led a Traffic Telematics Junior Research Group at the Institute of Telematics of the Karlsruhe Institute of Technology (KIT), Germany. His research interests are related to the investigation of cooperative ITS strategies and to the characterization of the mutual relationship between vehicular mobility and heterogeneous vehicular communication.

Jérôme has been Co-Chair of the special session on traffic telematics at IEEE PIMRC'09, has served as Demo Chair and TPC Co-chair of the IEEE Conference on Wireless Vehicular Communications (WiVeC) 2008 and 2010 respectively, and is the author of the chapter on "Vehicular Mobility Modeling for VANET" in the book "VANET: Vehicular Applications and Inter-Networking Technologies", (Eds. H. Hartenstein and K. Laberteaux) published by Wiley in 2010.

He has been involved in the EU FP7 project iTETRIS, where he contributed to the architecture and the development of ITS applications and ITS infrastructure deployment strategies. He is now involved in the French Field Operational Test (FOT) project SCORE@F and the smart grid project VELCRI with simulation-related evaluations of cooperative ITS applications based on the iTETRIS Platform. He is actively participating to standardization activities of the ETSI TC ITS and of the CAR 2 CAR Communication Consortium.

Jérôme holds a M.Sc. degree and a Dr. ès sc. degree in telecommunication from the Swiss Institute of Technology (EPFL), Lausanne, Switzerland.