

# **2009 IEEE Vehicular Networking Conference**

**(VNC 2009)**

**Tokyo, Japan  
28 – 30 October 2009**



**IEEE Catalog Number: CFP09VNC-PRT  
ISBN: 978-1-4244-5685-7**

# TABLE OF CONTENTS

<b>Histogram-Based Density Discovery in Establishing Road Connectivity</b> .....	1
<i>Kevin Lee, Mario Gerla, Jiajie Zhu, Jih-Chung Fan</i>	
<b>IEEE 1609.4 DSRC Multi-Channel Operations and Its Implications on Vehicle Safety Communications</b> .....	8
<i>Qi Chen, Daniel Jiang, Luca Delgrossi</i>	
<b>Intelligent Strategies of Access Point Selection for Vehicle to Infrastructure Opportunistic Communications</b> .....	16
<i>Ichrak Amdouni, Fethi Filali</i>	
<b>A Multiple Intersection Integrated Wireless and Vehicular Network Simulator</b> .....	24
<i>Yalcin Balcioglu, Fusun Özgüner, Ümit Özgüner, Keith Redmill</i>	
<b>Range Sensor Evaluation for Use in Cooperative Intersection Collision Avoidance Systems</b> .....	29
<i>Jacob Fischer, Arvind Menon, Alec Gorjestani, Craig Shankwitz, Max Donath</i>	
<b>Realization of Anti-Collision Warning Application Using V2V Communication</b> .....	37
<i>Woong Cho, Kyeong-Soo Han, Hyun Kyun Choi, Hyun Seo Oh</i>	
<b>Development of Substitution System for Vehicular Collision Avoidance Support System (VCASS) by Personal Mobile Terminal</b> .....	42
<i>Shinji Nakai, Tetuya Maruoka, Haokun Wang, Tomotaka Wada, Hiromi Okada</i>	
<b>A Multi-Broadcast Communication System for High Dynamic Vehicular Ad-Hoc Networks</b> .....	49
<i>Andreas Lehner, Cristina Rico Garcia, Eugen Wige, Thomas Strang</i>	
<b>Cooperative Service Channel Reservation to Improve Performances of IEEE 802.11p/WAVE Networks</b> .....	56
<i>Claudia Campolo, Alessandro Cortese, Antonella Molinaro</i>	
<b>Maintaining Cohesive Fleets Via Swarming with Small-World Communications</b> .....	64
<i>Hen-Wei Tsai, Chien Chen, Chien-Chung Shen, Ron-Hong Jan, Hsia-Hsin Li</i>	
<b>Header Reduction to Increase the Throughput in Decentralized TDMA-Based Vehicular Networks</b> .....	72
<i>Mathieu Lenoble, Kenji Ito, Yukihiko Tadokoro, Masaki Takanashi, Katsushi Sanda</i>	
<b>A VANET-Based Emergency Vehicle Warning System</b> .....	76
<i>Andreas Buchenscheit, Florian Schaub, Frank Kargl, Michael Weber</i>	
<b>A Distributed Traffic Navigation System Using Vehicular Communication</b> .....	84
<i>Ratul Guha, Wai Chen</i>	
<b>An Application of V2V Communications : Cooperation of Vehicles for a Better Car Tracking Using GPS and Vision Systems</b> .....	92
<i>Georges Challita, Stéphane Mousset, Fawzi Nashashibi, Abdelaziz Bensrhair</i>	
<b>Bidirectional I2V Communication Applications for Advanced In-Vehicle ISA Systems</b> .....	98
<i>Martin Böhm, Alexander Frötscher</i>	
<b>SLOW: A Practical Pseudonym Changing Scheme for Location Privacy in VANETs</b> .....	104
<i>William Whyte, Tamás Holczer, André Weimerskirch, Levente Buttyan</i>	
<b>A TPM-Based Architecture for Improved Security and Anonymity in Vehicular Ad Hoc Networks</b> .....	112
<i>Gilles Guette, Olivier Heen</i>	
<b>Formally Verifiable Features in Embedded Vehicular Security Systems</b> .....	119
<i>Gyesik Lee, Hisashi Oguma, Akira Yoshioka, Rie Shigetomi, Akira Otsuka, Hideki Imai</i>	
<b>RR-Aloha+: A Slotted and Distributed MAC Protocol for Vehicular Communications</b> .....	126
<i>Hector Agustin Cozzetti, Riccardo Scopigno</i>	
<b>Impact of Asymmetric Traffic Densities on Delay Tolerant Vehicular Ad Hoc Networks</b> .....	134
<i>Ashish Agarwal, Thomas Little</i>	
<b>Dynamic Routing Based on Road Connectivity for Urban Vehicular Environment</b> .....	142
<i>Nadia Brahmi, Mounir Boussejra, Joseph Mouzna, Mireille Bayart</i>	
<b>Adaptive Location Based TDM Protocol for Inter-Vehicle Communication</b> .....	148
<i>Masaya Ohmori, Takaaki Umedu, Teruo Higashino</i>	
<b>Characterization of Vacant UHF TV Channels for Vehicular Dynamic Spectrum Access</b> .....	156
<i>Srikanth Pagadarai, Alexander Wyglinski, Rama Vuyyuru</i>	
<b>A GNU Radio Based Testbed Implementation with IEEE 1609 WAVE Functionality</b> .....	164
<i>Keith Redmill, Scott Biddlestone</i>	
<b>Experimental Modeling of the Effect of Adjacent Lane Traffic on the Vehicular Channel</b> .....	171
<i>Haris Kremo, Ivan Šeškar, Predrag Spasojević</i>	
<b>Exploring the Solution Space of Beaconing in VANETs</b> .....	179
<i>Emiel Martijn Van Eenennaam, Wouter Klein Wolterink, Georgios Karagiannis, Geert Heijenk</i>	

<b>An Analysis of GPS Sampling Rates Required in Travel Time Estimation</b> .....	187
<i>Sooksan Panichpapiboon, Wasan Pattara-Atikom</i>	
<b>A Delay Time Analysis for Multi-Hop V2V Communications Over a Linear VANET</b> .....	193
<i>Junichiro Fukuyama</i>	
<b>Approximate Analysis of a Multiple Geocast Routing among Geographical Regions in VANET Applications</b> .....	200
<i>José Everardo Bessa Maia, Joaquim Celestino</i>	
<b>Range-Based Localization for Estimating Pedestrian Trajectory in Intersection with Roadside Anchors</b> .....	206
<i>Weihua Sun, Hirozumi Yamaguchi, Keiichi Yasumoto, Minoru Ito</i>	
<b>Performance Analysis of Inter-Vehicle Communications in Multilane Traffic Streams</b> .....	214
<i>Xiaoyan Sun, Yuanlu Bao, Jun Dai, Wei Lu, Renhua Gao</i>	
<b>A Multi-Antenna Switched Links Based Inter-Vehicular Network Architecture</b> .....	220
<i>Wai Chen, Ratul Guha, John Lee, Ryokichi Onishi, Rama Vuyyuru</i>	
<b>Direction Based Clustering Algorithm for Data Dissemination in Vehicular Networks</b> .....	227
<i>Nitin Maslekar, Mounir Boussedjra, Joseph Mouzna, Labiod Houda</i>	
<b>Localized Data Dissemination in Vehicular Sensing Networks</b> .....	233
<i>Ling-Jyh Chen, Ying-Yu Chen, Kun-Chan Lan, Chien-Ming Chou</i>	
<b>An Adaptive Forwarding Mechanism for Data Dissemination in Vehicular Networks</b> .....	239
<i>Nestor Mariyasagam, Hamid Menouar, Massimiliano Lenardi</i>	
<b>Author Index</b>	