

2019 IEEE International Conference of Vehicular Electronics and Safety (ICVES 2019)

**Cairo, Egypt
4 – 6 September 2019**



**IEEE Catalog Number: CFP19ICV-POD
ISBN: 978-1-7281-3474-1**

**Copyright © 2019 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP19ICV-POD
ISBN (Print-On-Demand):	978-1-7281-3474-1
ISBN (Online):	978-1-7281-3473-4
ISSN:	2643-9743

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

TOWARDS VISION ZERO: ADDRESSING WHITE SPOTS BY ACCIDENT DATA BASED ADAS DESIGN AND EVALUATION	1
<i>Lukas Stark ; Simone Obst ; Stefan Schoenawa ; Michael Düring</i>	
SINGLE ANTENNA PRECISE ANGLE ESTIMATION BY EXPLOITING DOPPLER SHIFT AND ITS APPLICATION IN PEDESTRIAN POSITIONING	7
<i>Wataru Komamiya ; Sadao Obana ; Suhua Tang</i>	
AUTOMOTIVE STANDARDS COMPLIANCE COST REDUCTION BY MUTUAL INTEGRATION BETWEEN AUTOMOTIVE SPICE AND IATF 16949:2016	14
<i>Samer S. Makkar ; Ahmed M. Abdelfatah ; Ahmed H. Yousef</i>	
EXPLICIT NEGOTIATION METHOD FOR COOPERATIVE AUTOMATED VEHICLES	20
<i>Matthias Nichting ; Daniel Heß ; Julian Schindler ; Tobias Hesse ; Frank Köster</i>	
TCP AND HTTP FLOOD DDOS ATTACK ANALYSIS AND DETECTION FOR SPACE GROUND NETWORK.....	27
<i>Ahmed Ramzy Shaaban ; Essam Abdelwaness ; Mohamed Hussein</i>	
COOPERATIVE STRATEGICAL DECISION AND TRAJECTORY PLANNING FOR AUTOMATED VEHICLE IN URBAN AREAS.....	33
<i>Reza Dariani ; Julian Schindler</i>	
MULTI-PATH PLANNING METHOD FOR UAVS SWARM PURPOSES.....	39
<i>Ángel Madridano ; Abdulla Al-Kaff ; David Martín Gómez ; Arturo De La Escalera</i>	
A SURVEY OF NETWORK INTRUSION DETECTION SYSTEMS FOR CONTROLLER AREA NETWORK.....	45
<i>Guillaume Dupont ; Jerry Den Hartog ; Sandro Etalle ; Alexios Lekidis</i>	
ANALYSIS OF MICROSTRUCTURES IN TRAFFIC JAMS ON HIGHWAYS BASED ON DRONE OBSERVATIONS	51
<i>Yildirim Dülger ; Michael Menth ; Hubert Rehborn ; Micha Koller</i>	
A TIGHTLY COUPLED LIDAR-IMU SLAM IN OFF-ROAD ENVIRONMENT	57
<i>Zhehua Zhang ; Haiou Liu ; Jianyong Qi ; Kaijin Ji ; Guangming Xiong ; Jianwei Gong</i>	
A NOVEL METHOD OF TRAVERSABLE AREA EXTRACTION FUSED WITH LIDAR ODOMETRY IN OFF-ROAD ENVIRONMENT	63
<i>Baochang Zhu ; Guangming Xiong ; Huijun Di ; Kaijin Ji ; Xin Zhang ; Jianwei Gong</i>	
FAIL-OPERATIONAL STEER-BY-WIRE SYSTEM FOR AUTONOMOUS VEHICLES.....	69
<i>Minglu Li ; Lutz Eckstein</i>	
OPTIMAL OPERATION OF ELECTRIC VEHICLE PARKING LOTS WITH ROOFTOP PHOTOVOLTAICS	75
<i>Helena M. D. Espassandim ; Mohamed Lotfi ; Gerardo J. Osório ; Miadrezha Shafie-Khah ; Omar M. Shehata ; João P. S. Catalão</i>	
BRAIN-IN-CAR: A BRAIN ACTIVITY-BASED EMOTION RECOGNITION EMBEDDED SYSTEM FOR AUTOMOTIVE	80
<i>Abdelrahman El-Amin ; Ahmed Attia ; Omar Hammad ; Osama Nasr ; Osama Ghozlan ; Remon Raouf ; Ahmed M. Hamed ; Hany Eldawlatly ; Magdy El-Moursy ; Seif Eldawlatly</i>	
AN INDOOR VISION-BASED MARKOV LOCALIZATION TECHNIQUE OF A QUADROTOR	85
<i>Fares Tarek Ali ; Omar Abdulaziz Fahmy ; Ayman A. El-Badawy</i>	
PATH-FOLLOWING AND ADJUSTABLE DRIVING BEHAVIOR OF AUTONOMOUS VEHICLES USING DUAL-OBJECTIVE NONLINEAR MPC.....	91
<i>Mohamed A. Daoud ; Mostafa Osman ; Mohamed W. Mehrez ; William W. Melek</i>	
A TOOL CHAIN FOR GENERATING CRITICAL TRAFFIC SITUATIONS FOR TESTING VEHICLE SAFETY FUNCTIONS.....	97
<i>Peter Riegl ; Andreas Gaull ; Michael Beitelshmidt</i>	
UNCERTAINTY-ADAPTIVE, RISK BASED MOTION PLANNING IN AUTOMATED DRIVING	103
<i>Clemens Markus Hruschka ; Michael Schmidt ; Daniel Töpfer ; Sebastian Zug</i>	
OPTIMAL DUBINS PATH GENERATION, SYSTEM IDENTIFICATION AND CONTROL OF A PARAMOTOR.....	110
<i>William Habib ; Ramy Elsabbagh ; Ayman El-Badawy</i>	
CYCLIC LEADER-FOLLOWER STRATEGY FOR COOPERATIVE UNMANNED AERIAL VEHICLES	116
<i>Mohamed Mahfouz ; Ahmed T. Hafez ; Mahmoud M. Ashry ; Gamal Elnashar</i>	

AUTONOMOUS EMBEDDED SYSTEM ENABLED 3-D OBJECT DETECTOR: (WITH POINT CLOUD AND CAMERA)	122
<i>Dewant Katare ; Mohamed El-Sharkawy</i>	
OBJECT DETECTION LEARNING TECHNIQUES FOR AUTONOMOUS VEHICLE APPLICATIONS	128
<i>Mehdi Masmoudi ; Hakim Ghazzai ; Mounir Frikha ; Yehia Massoud</i>	
FORWARD COLLISION PREDICTION WITH ONLINE VISUAL TRACKING	133
<i>Surya Kollazhi Manghat ; Mohamed El-Sharkawy</i>	
SHALLOW SQUEEZENEXT: AN EFFICIENT & SHALLOW DNN	138
<i>Jayan Kant Duggal ; Mohamed El-Sharkawy</i>	
INTELLIGENT VEHICLES LOCALIZATION APPROACHES BETWEEN ESTIMATION AND INFORMATION: A REVIEW	144
<i>Mostafa Osman ; Ahmed Hussein ; Abdulla Al-Kaff</i>	
OPTIMIZATION OF A CNN-BASED OBJECT DETECTOR FOR FISHEYE CAMERAS	152
<i>Payam Goodarzi ; Martin Stellmacher ; Michael Paetzold ; Ahmed Hussein ; Elmar Matthes</i>	
ENHANCED URBAN CLUSTERING IN VANETS USING ONLINE MACHINE LEARNING	159
<i>Ghada H. Alsuhli ; Ahmed Khattab ; Yasmine A. Fahmy ; Yehia Massoud</i>	
RAINDROPS ON THE WINDSHIELD: PERFORMANCE ASSESSMENT OF CAMERA-BASED OBJECT DETECTION	165
<i>Sinan Hasirlioglu ; Fabio Reway ; Tim Klingenberg ; Andreas Riener ; Werner Huber</i>	
AUTONOMOUS CAR-FOLLOWING APPROACH BASED ON REAL-TIME VIDEO FRAMES PROCESSING	172
<i>Mehdi Masmoudi ; Hakim Ghazzai ; Mounir Frikha ; Yehia Massoud</i>	
DESIGN AND DEVELOPMENT OF AN AUTONOMOUS IN-SEAT PASSENGER STATE IDENTIFICATION IN A MODERN VIGILANCE ENABLED PUBLIC TRANSPORTATION SYSTEM	178
<i>Pranav Kedia ; Pranav Aggarwal ; Madhav Rao</i>	
HYPERGRID: A HYPER-FAST ROS-BASED FRAMEWORK FOR LOCAL MAP GENERATION	184
<i>Francisco Miguel Moreno ; Omar El-Sobky ; Fernando Garcia ; Jose Maria Armingol</i>	
SCENARIO MINING FOR DEVELOPMENT OF PREDICTIVE SAFETY FUNCTIONS	190
<i>Hiroki Watanabe ; Lukas Tobisch ; Julia Rost ; Johannes Wallner ; Günther Prokop</i>	
MULTI-GRID BASED DECISION MAKING AT ROUNDABOUT FOR AUTONOMOUS VEHICLES	197
<i>Weichao Wang ; Quang A. Nguyen ; Wubin Ma ; Jiefei Wei ; Paul Wai Hing Chung ; Qinggang Meng</i>	
NORMALIZATION OF MICRO-DOPPLER SPECTRA FOR CYCLISTS USING HIGH-RESOLUTION PROJECTION TECHNIQUE	203
<i>Patrick Held ; Dagmar Steinhäuser ; Alexander Kamann ; Andreas Koch ; Thomas Brandmeier ; Ulrich T. Schwarz</i>	
NOVEL APPROACH OF SATELLITE HEALTH EVALUATION VIA CONVOLUTIONAL NEURAL NETWORK	209
<i>Hossam Emam Saudi ; Wessam M Hussein ; Ehab Said ; Ahmad M. Al-Zaidy</i>	
MULTI-SENSOR FUSION FOR THE LOCALIZATION OF A SMALL VEHICLE IN OUTDOOR URBAN DRIVING SCENARIO	215
<i>Mostafa Ayman ; Youssef Salem ; Ahmed Hammam ; Elsayed I. Morgan</i>	
PATH PLANNING WITH DISCRETE GEOMETRIC SHAPE PATTERNS	221
<i>Bruno Simon ; Peter Riegl ; Andreas Gaull</i>	
PRE-CRASH VEHICLE CONTROL AND MANOEUVRE PLANNING: A STEP TOWARDS MINIMIZING COLLISION SEVERITY FOR HIGHLY AUTOMATED VEHICLES	228
<i>Masoumeh Parseh ; Fredrik Asplund ; Mikael Nybacka ; Lars Svensson ; Martin Törngren</i>	
LIDAR BASED PREDICTION AND CONTACT BASED VALIDATION OF CRASH PARAMETERS FOR A PREEMPTIVE RESTRAINT STRATEGY	234
<i>Gerald Joy Alphonso Sequeira ; Shahabaz Afraj ; Robert Lugner ; Thomas Brandmeier</i>	
INTRODUCING VARIOUS NOVEL OPTIMIZATION TECHNIQUES FOR TASK ALLOCATION IN MULTI-VEHICLES SYSTEMS	241
<i>Wessam Shoman ; Mahmoud El-Barrawy ; Youssef Mekhail ; Ali B. Bahgat ; El-Sayed I. Morgan</i>	
MULTI-MODAL DEEP LEARNING FOR VEHICLE SENSOR DATA ABSTRACTION AND ATTACK DETECTION	247
<i>Mark Rofail ; Aysha Alsafty ; Matthias Matousek ; Frank Kargl</i>	
ADVANCED MAPPING AND LOCALIZATION FOR AUTONOMOUS VEHICLES USING OSM	254
<i>Mustafa Ismail ; Ahmed Tarek ; Pablo Marin Plaza ; David Martin Gomez ; José María Armingol ; Mohamed Abdelaziz</i>	

INCREMENTAL RECOMMENDATION SYSTEM FOR LARGE-SCALE TAXI FLEET IN SMART CITIES	260
<i>Xiangpeng Wan ; Hakim Ghazzai ; Yehia Massoud</i>	
EXTREME GRADIENT BOOSTING MACHINE LEARNING ALGORITHM FOR SAFE AUTO INSURANCE OPERATIONS	266
<i>Najmeddine Dhieb ; Hakim Ghazzai ; Hichem Besbes ; Yehia Massoud</i>	
A NOVEL ROS-BASED JOINING AND LEAVING PROTOCOLS FOR PLATOON MANAGEMENT	271
<i>Amr Farag ; Dalia M. Mahfouz ; Omar M. Shehata ; Elsayed I. Morgan</i>	
STUDYING THE DYNAMICAL-BASED CLOSED LOOP ROBOT TRAJECTORY BEHAVIOR VIA LQR, SMC, AND TDC	277
<i>Mohamed M. Rehaan ; Roaa A. Altahtawy ; Ali R. Ibrahim ; Catherine M. Elias ; Dalia M. Mahfouz ; Elsayed I. Morgan</i>	
BENEFICIAL PERFORMANCE ASSESSMENT OF VORONOI-BASED CENTROIDAL SCHEME FOR AREA COVERAGE.....	283
<i>Shaza Eltobgy ; Catherine M. Elias ; Elsayed I. Morgan</i>	
RAPID MANAGEMENT OF UNEXPECTED EVENTS IN URBAN V2I COMMUNICATIONS SYSTEMS	289
<i>Michael C. Lucic ; Hakim Ghazzai ; Ahmed Khattab ; Yehia Massoud</i>	
DEEP POLICY-GRADIENT BASED PATH PLANNING AND REINFORCEMENT COOPERATIVE Q-LEARNING BEHAVIOR OF MULTI-VEHICLE SYSTEMS.....	295
<i>Ahmed M. Afifi ; Omar H. Alhosainy ; Catherine M. Elias ; Omar M. Shehata ; Elsayed I. Morgan</i>	
A REALISTIC MODEL PREDICTIVE CONTROL USING SINGLE AND MULTIPLE SHOOTING IN THE FORMULATION OF NON-LINEAR PROGRAMMING MODEL	302
<i>Ali S. Hussein ; Catherine M. Elias ; Elsayed I. Morgan</i>	
FUZZIFIED FLOCKING BASED FORMATION ROS-ENABLED ARCHITECTURE OF HETEROGENEOUS MULTI-AGENT SYSTEMS.....	308
<i>Omar M. Galal ; Mustafa Alberri ; Sherif Hegazy ; Catherine M. Elias ; Omar M. Shehata ; Elsayed I. Morgan</i>	
A JOINT SIMULATION FOR ELECTRIC VEHICLE DESIGN BASED ON MATLAB/SIMULINK AND CARSIM	315
<i>Chengwei Zhu ; Can Zhao ; Zhiheng Li</i>	
SYSTEM IDENTIFICATION USING LMS, RLS, EKF AND NEURAL NETWORK.....	321
<i>Gökhan Akgün ; Habib Ul Hasan Khan ; Marawan Hebaish ; Diana Gohringer</i>	
MOBILITY AND ENERGY AWARE DATA ROUTING FOR UAV-ASSISTED VANETS	327
<i>Hakim Ghazzai ; Ahmed Khattab ; Yehia Massoud</i>	
Author Index	