2022 IEEE International Conference on Vehicular Electronics and Safety (ICVES 2022)

Bogota, Colombia
14-16 November 2022

IEEE Catalog Number: CFP22ICV-POD
ISBN: 978-1-6654-7699-7

Copyright © 2022 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:	CFP22ICV-POD
ISBN (Print-On-Demand):	978-1-6654-7699-7
ISBN (Online):	978-1-6654-7698-0

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

Andrea de Pilar Bermudez Sierra
Ministry of Transportation, Colombia

Scientific Committee

Name	Affiliation
Klaus Banse	ITS COLOMBIA
Marcel Baunach	Graz University of Technology
Diego Bermudez	Ministry of transportation, Colombia
Eduardo Carrillo	Autonomous University of Bucaramanga
Hilmi Berk Celikoglu	University of Istambul
Jason Chang	National Taiwan University
Jaime Chavarriaga	Aranda Software
Samy El-Tawab	James Madison University
Cesar Gomez	Ministry of transportation, Colombia
German Hernandez	National University of Colombia
Gilberto Pedraza	Pilot University of Colombia
Luis Herrera-Quintero	Pilot University of Colombia / Ministry of transportation
Felipe Jimenez	Universidad Politécnica de Madrid
Maryam Kaveshgar	Ahmedabad University
Carlos Lozano	Andes University of Colombia
Ferney Maldonado	Genius Sports
Andres Marentes	EAFIT University, Colombia / Ministry of Transportation Colombia
German Montoya	Andes University of Colombia
Gilberto Osorio-Gómez	EAFIT University, Colombia
Javier Riascos	Universidad Tadeo, Colombia
Miguel Sepulcre	Miguel Hernandez University Of Elche, Spain
Miguel Angel Sotelo	University of Alcala
Suhua Tang	The University of Electro-Communications
Julian Vega	Stryd
Alexey Vinel	Karlsruhe Institute of Technology, Germany
Senthil Yogamani	Qualcomm

CONTENTS

Virtual Reality applied to Intelligent Transportation Systems

Powertrain photography and visualization using SWIM (Sequential Wave Imprinting Machine) for veyance safety.....1

Steve Mann, Jaden Bhimani, Calum Leaver-Preyra, Kyle Simmons and Jimi Tjong

Comparing Different Pedestrian Representations for Testing Automated Driving Functions in Mixed Reality Environments.....9

Jakob Peintner, Maikol Funk Drechsler, Carina Manger, Georg Seifert, Fabio Reway, Werner Huber and Andreas Riener.

Basic research on construction of a VR riding simulator for motorcycle safety.....16
Tomotaka Nagaoasa, Teppei Yatsuzuka and Ryochi Shindo.

Road Safety

A practical approach based on IoT, Video, Audio, and ITS for Micro-Sleep detection in public transportation systems.....22

Pablo Balcero, Alfredo Jose Calderon, Juan Carlos Navarro and Luis Andres Marentes, Jerzon Y. Carrillo-Pinzon and Luis Felipe Herrera-Quintero

On the Feasibility of Real Time Prediction of Drivers Traffic Accident Risk with Auto ML on Brain Concentration Levels.....28

John Garcia, Wilson Arias-Rojas and German Hernandez.

Road Safety Perception for Implementing in Autonomous Vehicles in a Lane Change Scenario.....33

Enrico Del Re and Cristina Olaverri-Monreal.

Prediction of a Road User's Most Likely Future Positions via Simple Kernel Density Estimation.....39

Angelos Toytziaridis, Paolo Falcone and Jonas Sjöberg

Imaging for autonomous vehicles

Detection of Vertical Poles in a Road Environment Using Monocular Images based on YOLOv4.....44

Yasser Sheweta and Ahmed Hussein

Road Markings Segmentation from LIDAR Point Clouds using Reflectivity Information.....50

Novel Certad, Walter Morales-Alvarez and Cristina Olaverri-Monreal

Real-time Depth Completion using Radar and Camera.....56

Omar Abdulaaty, Gregory Schroeder, Ahmed Hussein, Franz Albers and Torsten Bertram.

Control Theory and Maneuver Planning

Pedestrian Emergency Braking in Ten Weeks.....62

Steven Nguyen, Zillur Rahman and Brendan Morris.

Lateral Control of a Self-driving Bike.....68

Guanzheng Wen and Jonas Sjöberg.

Maneuver Planner for Automated Vehicles on Urban Scenarios.....74

Juan Felipe Medina-Lee, Victor Jimenez, Jorge Godoy and Jorge Villagra.

RRT Trajectory Planning Approach For Automated Semi-trailer truck Parking.....81
Ray Lattarulo, Joshue Pérez Rastelli and Jesús Murgoitio.

V2X Communications

Protection of Vulnerable Road Users using Hybrid Vehicular Networks.....88

Oscar Amador Molina, Erik Ronelöv, Katarina Boustedt, Jesper Blidkvist and Alexey Vinel.

Efficient V2V communications by clustering-based collaborative caching.....94

Hiroki Tokunaga and Suhua Tang.