IEEE Transactions on Intelligent Transportation Systems

Call for Papers
Special Issue on "Context Prediction for Autonomous Vehicles"

The integration of advanced sensing, signal processing, deep learning, and edge computing into vehicles is enabling intelligent automated vehicles that can navigate autonomously in various environments. There are several exciting developments in new technologies that may contribute to the improvement of the robustness of autonomous vehicles and thus making them safer on the road. However, the development of suitable context prediction methodologies in order to provide the proactive behavior for the intelligent transportations remains a challenge. The reason is that future context information, hidden in the raw context traces left by users in the real world, is not immediately accessible to applications. Therefore, sophisticated context prediction approaches are required that could discover and mine patterns (e.g. of a driver's behavior) from observed context history. The major challenge of a context prediction approach is in the prediction accuracy and prediction expressiveness. Neural Networks along with deep learning methods have shown noticeably better performance in comparison with previous methods regarding the accuracy of the outcomes. However, deep learning also issues more complexity and interpretability problems and hence, arises serious challenges regarding the verifiability of these approaches. We are looking for original contributions in this Special Issue of Vehicles titled "Autonomous Context Prediction for Autonomous Vehicles". This special emphasis will also be devoted to not only cover the current state-of-the-art, but also new and emerging trends.

We invite researchers to contribute original papers describing applications and experiences on the emerging trends of the methods for solving and modeling problems in terms of autonomous context prediction for autonomous vehicles. The purpose of this special issue is to publish high-quality research papers as well as review articles addressing recent advances.
The expected topics of interest include, but are not limited to:

- Trajectory big data analysis in autonomous vehicles
- Identification of driver behavior characteristics
- Scene understanding
- Real-time prediction approaches
- Image processing by deep learning
- Personalized situation adaptive user interaction in the vehicles
- Improving the data collection process
- Voice dialogue algorithms for hands-free interaction
- Multimodality in emotion recognition methods
- Learned visual features for multiple motion planning
- Security and robust learning control for autonomous vehicles

PAPER SUBMISSION GUIDELINES

Paper submission should conform to the information for authors available at
https://mc.manuscriptcentral.com/t-its.

IMPORTANT DATES

First submission deadline: April 30, 2021
Notification of first decision: July 31, 2021
First revision submission deadline: September 30, 2021
Notification of final decision: January 2022
Final manuscript (camera ready) submission deadline: February 2022
Issue of Publication: April 2022

SUBMISSION AND REVIEW OF PAPERS

Submitted papers should be original and not be under consideration elsewhere for publication. The authors should follow the journal guidelines, regarding the manuscript content and its format when preparing their manuscripts. All papers will be reviewed by at least three independent reviewers for their suitability in terms of technical novelty, scientific rigor, scope, and relevance to this special issue.

Guest Editors

Prof. Shaohua Wan
Zhongnan University of Economics and Law, China
Email: shaohua.wan@ieee.org

Prof. Sotirios Goudos
Aristotle University of Thessaloniki, Greece
Email: sgoudo@physics.auth.gr

Prof. Alireza Jolfaei
Macquarie University, Australia
Email: alireza.jolfaei@mq.edu.au

Prof. Wout Joseph
Ghent University, Belgium
Email: Wout.Joseph@ugent.be

Shaohua Wan (SM'19) received the joint Ph.D. degree from the School of Computer, Wuhan University and the Department of Electrical Engineering and Computer Science, Northwestern University, USA in 2010. Since 2015, he has been holding a post-doctoral position at the State Key Laboratory of Digital Manufacturing Equipment and Technology, Huazhong University of Science and Technology. From 2016 to 2017, he was a visiting professor at with the Department of Electrical and Computer Engineering, Technical University of Munich, Germany. He is currently an associate professor at Zhongnan University of Economics and Law, China. His main

research interests include deep learning for Internet of Things and edge computing. He is an author of over 100 peer-reviewed research papers and books. He had served as the lead Guest of ACM Transactions on Multimedia Computing Communication, Journal of Systems Architecture, Computer Communications, Pattern Recognition Letters and Computers and Electrical Engineering. He is a senior member of IEEE.

Sotirios K. Goudos (S'01–M'05–SM'14) received the B.Sc. degree in Physics in 1991 and the M.Sc. of Postgraduate Studies in Electronics in 1994 both from the Aristotle University of Thessaloniki. In 2001, he received the Ph.D. degree in Physics from the Aristotle University of Thessaloniki and in 2005 the Master's in information systems from the University of Macedonia, Greece. In 2011, he obtained the Diploma degree in Electrical and Computer Engineering from the Aristotle University of Thessaloniki. He joined the Department of Physics, Aristotle University of Thessaloniki in 2013, where he is currently an Associate Professor. Dr. Goudos is the director of the ELEDIA@AUTH lab member of the ELEDIA Research Center Network. His research interests include antenna and microwave structures design, evolutionary algorithms, machine learning, wireless communications, and semantic web technologies. Dr. Goudos is the founding Editor-in-Chief of the Telecom open access journal (MDPI publishing). Prof. Goudos is currently serving as Associate Editor for IEEE ACCESS and IEEE open journal of the communication society. He is also member of the Editorial Board of the International Journal of Antennas and Propagation (IJAP), the EURASIP Journal on Wireless Communications and Networking and the International Journal on Advances on Intelligent Systems. He is also member of the topic board of the Electronics open access journal. Prof. Goudos is currently serving as Chapter/AG coordinator for IEEE Greece Section.

Alireza Jolfaei (Senior Member, IEEE) received the Ph.D. degree in applied cryptography from Griffith University, Gold Coast, QLD, Australia, in 2015.,He is the Program Leader of Cyber Security with Macquarie University, Sydney, Australia. Before this appointment, he was an Assistant Professor with Federation University Australia and Temple University in Philadelphia, USA. His current research areas include Cyber and Cyber Physical Systems Security.,Dr. Jolfaei is the recipient of the prestigious IEEE Australian Council Award for his research paper published in the IEEE Transactions on Information Forensics and Security. He received a recognition diploma with a cash award from the IEEE Industrial Electronics Society for his publication at the 2019 IEEE IES International Conference on Industrial Technology. He is a Founding Chair of the Federation University IEEE Student Branch. He was the Chairman of the Computational Intelligence Society in the IEEE Victoria Section and also as the Chairman of Professional and Career Activities for the IEEE Queensland Section. He was the Guest Associate Editor for the IEEE Journals and Transactions, including the IEEE Sensors Journal, IEEE Internet of Things Journal, IEEE Transactions on Industrial Informatics, IEEE Transactions on Industry Applications, IEEE Transactions on Intelligent Transportation Systems, and IEEE Transactions on Emerging Topics in Computational Intelligence. He has served more than 10 conferences in leadership capacities including program Co-Chair, Track Chair, Session Chair, and Technical Program Committee member, including IEEE TrustCom and IEEE Infocom. He is a Distinguished Speaker of the ACM on the topic of cyber security.

Wout Joseph (Orcid: https://orcid.org/0000-0002-8807-0673) was born in Ostend, Belgium on October 21, 1977. He received the M. Sc. degree in electrical engineering from Ghent University (Belgium), in July 2000. From September 2000 to March 2005 he was a research assistant at the Department of Information Technology (INTEC) of the same university. During this period, his scientific work was focused on electromagnetic exposure assessment. His research work dealt with measuring and modelling of electromagnetic fields around base stations for mobile communications related to the health effects of the exposure to electromagnetic radiation. This work led to a Ph. D. degree in March 2005. From April 2005-2009, he was postdoctoral researcher for iMinds-UGent/INTEC. From October 2007 to October 2013, he was a Post-Doctoral Fellow of the FWO-V (Research Foundation – Flanders). Since October 2009, he is professor in the domain of Experimental Characterization of wireless communication systems. He is IMEC PI since 2017. He is elected council board lid of EBEA (European Bioelectromagnetics Association) in 2015- 2018, and re-elected board member at large in 2019.