

Proposal for a Special Session at the 2018 IEEE Symposium on Computational Intelligence in Vehicles and Transportation Systems (CIVTS'2018)

Special Session Title

Computational Intelligence in Intelligent Transport Systems

Theme and Scope

Intelligent Transport Systems (ITS) is a key field of research around mobility of people and goods. The term Intelligence in ITS mainly refers to innovation in methodologies and the creation of additional services rather than for actual intelligent algorithms and systems. Much of modern ITS technology was originally developed for use on roads, but ITS now covers the whole range of transportation systems. The past years have seen the development and deployment of ITS technologies around the world, increasing productivity, enhancing health, saving lives, time, costs and energy.

Many countries have invested massive public funds in research and technological development as the basis for urban and interurban implementation. They have also created their own ITS organizations to represent the industry, liaise with government, and share experience and best practice. Computational Intelligence plays a key role in the next generation of Intelligent Transport Systems. Although there are many conferences related to ITS around the world, in this special session we will focus on the theoretical and technical aspects of these systems, specifically related to computational intelligence. The aim of this special session in Computational Intelligence towards Intelligent Transport Systems is to gather and focus high quality research papers that advance ITS, provide new insights and nourish new innovation in this growing field by means of advanced Computational Intelligence based techniques

Topics

- Adaptive Urban Transport
- Learning and Optimisation in Traffic Management
- Learning Traffic Models for Simulation
- Intelligent Analysis and Modelling of Transport related Air Quality
- Adaptive Personal Mobility - Health and Wellbeing
- Learning and Optimisation enabling Modal Shift
- Adaptive and Optimised Supply Chain Management
- Data Exploitation in ITS
- Multi-objective optimisation in Intelligent Transport and Intelligent Mobility
- Computational Approaches towards integrating multi-modal transport.
- Deep Learning Approaches in ITS such as for predicting traffic flow, vehicle diagnostics, etc.
- ITS Downstream Satellite applications.
- Computational Intelligence in Transportation Cyber Physical Systems

Organisers / Chairs

Dr. Enrique Dominguez (main contact, email: enrique@lcc.uma.es)

Enrique Dominguez received his Ph.D. degree, with specialization on neural systems, from the University of Malaga (Spain). He is currently an associate professor at the department of Computer Science at the University of Malaga and a member of the European Innovation Partnership on Smart Cities and Communities (EIP-SCC). He has collaborated with several companies (Airzone, Fujitsu, Altra Corporacion, Fundación Andaluza de la Seguridad Social, Evita, Acerca, ...) leading the computer vision workgroup of different research projects. Dominguez is author of more than 40 peer-reviewed publications, he also serves as reviewer of several journals such as *IEEE Trans. of Neural Networks and Learning Systems*, *Neurocomputing*, *Neural Networks*, *International Journal of Parallel, Emergent and Distributed Systems*, *Neural Computing & Applications*, *Optimization*, etc. and an associate editor of the *International Journal of Computer Vision and Image Processing* (IJCVIP). In addition, he has participated chairing several special sessions or as traditional member of the program committee of several conferences such as SSCI, WCCI, IJCNN, IWANN, BMIC, ICANN, ASC, EURO and others. His research interests include intelligent systems, computer vision, mobility and transport, and urban sustainable mobility.

Professor. David Elizondo

David Elizondo is the Director of DMU's Interdisciplinary Research Group in Intelligent Transport Systems (DIGITS). David's primary research experience and interest is in the area of Artificial Intelligence and particularly in Artificial Neural Networks and Deep Learning techniques. During his time as an active researcher David has published more than 50 peer reviewed journal papers in the area of Artificial Intelligence. Most of his PhD students work in the area of Artificial Intelligence, either on innovating the method directly or applying AI techniques to diverse areas such as Pharmaceuticals, Transport etc. David is experienced in Leading and managing Research projects as well as supervising Researchers.

Dr. Lipika Deka

Lipika Deka is a Lecturer in Computer Science at De Montfort University, Leicester, UK and a member the University's ITS research group (DIGITS). She received the BEng degree in Computer Science and Engineering followed by the MTech degree in Computer Science respectively from Dibrugarh University and Jawaharlal Nehru University, India. In 2013 she received her PhD degree in Computer Science and Engineering from Indian Institute of Technology Guwahati, India specializing in Concurrency Control Techniques for File Systems. Her research interest lies in the area of Intelligent Transportation System, Obstacle Detection and Path Planning of Autonomous Vehicles, Concurrency Control Techniques, Transactional File Systems and Dynamic Software Updates.

List of potential contributors

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