

IEEE Transactions on Intelligent Transportation Systems

Call For Papers

Special Issue on “*Diversity in Transportation Systems for People and Goods*”

Motivation and Scope

Modern cities are complex socio-technical entities that exist to provide services effectively to their residents and visitors. In the *Transportation* context, **People** need to travel quickly and conveniently between locations at different scales, ranging from a trip of a few blocks to a journey across town or further. At the same time, **Goods** need to be timely delivered considering the needs of both the users and the businesses.

The continuous growth of population and the expansion of urban centres bring us new challenges. With limited capacity of the current infrastructure, technologies are often seen as the solutions to the growing travel demand. Examples of such technologies are dynamically introduced fares and application of *artificial intelligence*.

For this special issue, our assumption is that radical changes will be introduced in the transport systems. These changes will transform the current transport modes and a higher level of autonomy will be used compared to present, e.g., with the adoption of *connected autonomous vehicles* and *improved signalling*. While attempting to reduce congestion, technologies have already showed their positive impact on making streets cleaner and safer. Nevertheless, living in a profit-driven society, these technologies will eventually attract private investment; however, *what is the most adequate funding scheme for a technology-driven transport system? Who will cover the infrastructure installation and maintenance costs for electric vehicles and connected and autonomous cars?* Furthermore, the future relies on digital data and digital connectivity, highlighting the need to protect the privacy of the public.

In this special issue we are interested in contributions discussing how can we safeguard the society and ensure a high quality of life for all in a diverse and technology-dependent transport system. In particular, we are interested in the following **themes**:

- designing an inclusive transport system, e.g. engaging the public into the design of technological solutions;
- ensuring that sustainable technological solutions are integrated into future transport systems, e.g. modernising regulatory frameworks, societal needs, strategic transport planning (we can say smart cities but we need to define the term, as it varies across disciplines);
- the use of technologies for transport studies, environmental assessment and resilience in artificial intelligence.

LIST OF TOPICS: Topics of interest to this special issue include, but are not limited to:

Suitable topics for this special issue include, but are not limited to:

- Emerging technologies that reduce congestion, and make streets safer and cleaner, e.g. dynamic traffic management and training of drivers.
- Connected and autonomous vehicles technology and services for the mobility of people and goods in mixed-mode environments that improves efficiency, safety and cleanly.
- Transport infrastructure challenges (both physical and digital), ownership, accessibility and policy making.
- Technologies and the promotion of sustainable mobility, such as eco efficient solutions for traffic management.
- Mobility-as-a-Service and the societal impact, in particular, related to the sustainable development goals (SDGs) set by the United Nations target by 2030.
- Privacy and Ethics issues in the digital and multimodal transportation service economy.
- Gamification techniques to improve citizens' engagement and change traveler's behavior towards sustainability.
- Regulations for autonomous vehicles such as shuttle buses, in particular concerning safety, transportation capacity and traffic flow, both in public and private scenarios.
- Autonomous mobility of vulnerable people (e.g. children, elderly, pregnant women, citizens without driving licensing) in large cities as well as in rural areas.
- Public-private partnerships that enables new venture creation for social impact over the whole value chain of multi-modal transport systems.
- Machine learning for informed decisions made by the planners and regulators.

PAPER SUBMISSION GUIDELINES

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

IMPORTANT DATES

The tentative schedule for this Special Issue is as follows:

First submission deadline: **April 3rd, 2020**

Notification of first decision: **July 3rd, 2020**

First revision submission deadline: **September 3rd, 2020**

Notification of final decision: **January 3rd, 2021**

Final manuscript (camera ready) submission deadline: **February 3rd, 2021**

Issue of Publication: **April 3th, 2021**

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Antonio Bucchiarone, Researcher within the DAS Research Unit @ FBK. His main research interests include Domain Specific Languages, Self-Adaptive (Collective) Systems, and AI planning techniques for Automatic and Runtime Service Composition. He received a PhD in Computer Science and Engineering from the IMT School for Advanced Studies Lucca in 2008 and since 2004 he has been a collaborator of Formal Methods and Tools Group at ISTI-CNR of

Pisa (Italy). Moreover, he has been visiting at Nokia Siemens Networks in Lisbon involved in a research project on Software Architectures for Embedded Systems. He has been actively involved in various European research projects in the field of Self-Adaptive Systems, Smart Mobility and Constructions and Service-Oriented Computing. He was the general chair of the 12th IEEE International Conference on Self-Adaptive and Self Organizing Systems (SASO 2018) and part the Program Committees of various international conferences the field of Self-Adaptive Systems (SASO), Service-Oriented Computing (ICSOC), and Software Architecture (ACM SAC).

Sandro Battisti, PhD is responsible for the Transport & Mobility Program at the Smart Cities and Communities Area at the ICT Center of Fondazione Bruno Kessler (FBK). He is program manager with over 20 years of experience in management of technology, innovation and business development of ICT-based solutions in Brazil, Italy, Finland, UK, USA, Germany, and France. He has proven track records in managing projects and programs in the domains of Smart Mobility, Connected Vehicles, Last Mile Logistics, and Smart Retail. He has considerable international experience in leading complex projects and programs, and negotiating with multiple stakeholders. He has an academic background in Electronics and Computer Engineering (BEng/MEng) from PUCRS/Brazil, Enterprise Management (MBA) from IBGEN/Brazil, and Innovation Management (PhD) from Polytechnic of Milan/Italy. His research in the field of innovation and entrepreneurship has been published in relevant international journals such as Journal of Social Entrepreneurship, International Journal of Services Technology and Management, International Journal of Innovation and Technology Management, International Journal of Management Practice and International Journal of Technology Marketing.

Teresa Galvão has a background in Mathematics from the University of Coimbra and a Master in Electrical and Computers Engineering. She holds a PhD in Sciences of Engineering from the University of Porto since 2005. She is Assistant Professor in the Faculty of Engineering of University of Porto and a senior researcher at INESC TEC in Porto. She has participated in several national and European R&D projects in areas related to transportation systems and mobility. She collaborates regularly with the largest public transport companies in Portugal as researcher and consultant and was responsible for the development and implementation of several innovative systems for the operational planning, mobile ticketing, and passenger information in several of those companies. The academic and professional background led her to have a broad and multidisciplinary perspective of the current transportation and mobility challenges. Her main research interests are operational research, data science, human-computer interaction, and transportation systems. She has more than 70 scientific publications, supervised 9 PhD students and more than 100 MSc students. She is the co-founder and CEO of OPT-Optimização e Planeamento de Transportes, SA, a company that develops innovative solutions for the optimization of public transport operation, the provision of passenger information and mobility management.

Philip Feldman is ASRC Federal's AI/ML Futurist. His most recent work has been to develop reliable, resilient neural network architectures using evolutionary algorithms combined with model ensembles. His PhD work at the University of Maryland explores how to detect user belief-based

behavior patterns to determine trustworthiness of information in scale-free and domain-independent ways. He has extensive experience with time series analysis, natural language processing, machine learning, control systems, high-performance graphics and agent-based simulation. He has over 35 years of professional experience in industry and government, including work for NASA, NOAA, NIST, and the Department of Defense. He has written or contributed to numerous papers and patents including publications in machine learning, agent-based simulation, medical simulation, computational sociology, and AI ethics. In a past life he worked in motion picture special effects including Predator and Star Trek IV.

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