

CALL FOR PAPERS**DATA-DRIVEN OPTIMIZATION FOR TRANSPORTATION LOGISTICS & SMART MOBILITY APPLICATIONS**

We live in an era of major societal and technological changes. Post-industrial demographic trends, like massive migrations and an ageing society, and transportation de-carbonization generate new challenges for cities making an efficient and sustainable management of services and resources more than ever necessary. Cities must evolve, transform and become “Smart Cities” to cope with these challenges. According to the literature, a city can be referred to as ‘smart’ “when investments in human and social capital and traditional (transportation) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory government”. A Smart City is a city’s response to the challenges referred above, but also the opportunities raised by the societal digitalization and the evolution and progress of Information and Communications Technologies (ICT). Ubiquitous sensing and actuation devices do not make a city smart by themselves; it is rather a matter of the city’s structure, dynamics, and the implications of the technology on the improvement of the wealth and quality of life of its citizens.

Hence, the challenge for smart cities, and smart mobility in particular is twofold: first, to provide access to all the traditional services a city needs to provide citizens in this context of rising population concentration in such cities. Second, to make the city a more sustainable urban ecosystem, taking advantage of the moment of redefinition of cities, and the context of technological development, which translates into a greener and more efficient mobility.

Indeed, a central service affecting many of the others (economic development, access to health and education, etc.) is mobility. Concrete benefits can be seen, for instance, in Public Transportation. A more accurate demand profiling -- by virtue of e.g. crowd-sourced sensing applications (smart apps) -- may help both service providers to plan optimal routes, and periodicities, and travelers, with a service closer to their daily needs. Privately owned vehicles can also take advantage of a holistic smart city strategy, while contributing to mobility management, for example by sharing their daily commuting traces and obtaining in return more accurate travel time predictions and alternative optimal routes from the city. An important aspect in Smart Cities and Smart Mobility is its bi-directionality, as can be seen in these examples.

Regarding logistics in the business world, connections have been considerably improved during the last decades. Thanks to this, an efficient logistic network can make a huge difference for companies and relevant business operations. Consequently, and due to the rapid advance of technologies, different innovative problems related with the design and solving of smart mobility and logistic situations have arisen in the literature. This fact has given to these fields a momentum in the current scientific community.

Mostly all across smart mobility shares a common challenge: limited resources to be optimized. The main reasons for the popularity and importance of these optimization problems are two folded: the social interest they generate, and their inherent scientific interest. On one hand, routing problems are normally designed to deal with real-world situations related to the transportation or logistics. This is the reason why their efficient resolution entails a profit, either social or business one. On the other hand, most of the problems arising in this field have a great computational complexity. For this reason, the resolution of these problems is a major challenge for the scientific community.

This special issue aims at disseminating the latest findings, research achievements and ideas through the eye of data-driven optimization, with an intention to balance between theoretical research ideas and their practicability as well as industrial applicability. Special attention will be paid to data-driven optimization algorithms and techniques, proving their use in smart city and transportation logistics applications.

TOPICS

Topics of interest include, but are not limited to:

- Novel Distributed Optimization methods, including cellular and island-based schemes.
- Swarm Intelligence, evolutionary computation and other nature-inspired optimization techniques.
- Meta- and Hyper-heuristics for optimization.
- Hybridization of Swarm Intelligence techniques, Memetic Computing, Adaptive Swarm Intelligence methods.
- Multi-objective and many-objective solvers.
- Online optimization based on real time traffic sensing data.

Applied to the following fields (not limited):

- Parking lot optimization and demand management.
- Emergency and public transportation aware traffic planning.
- Environmentally friendly mobility planning.
- Federated and collaborative logistics.
- Transportation sharing tasks.
- Pedestrian dynamics.
- Complex traffic planning and optimization using crowdsourced data in urban environments.
- Car sharing and carpooling.

IMPORTANT DATES

- **November 15, 2018:** Deadline for Initial Paper Submission.
- **January 10, 2019:** Notification of First Round Decision.
- **February 7, 2019:** Deadline for Revised Paper Submission.
- **March 1, 2019:** Final acceptance decision.
- **April 1, 2019:** Deadline for Final paper submission.

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SUBMISSION AND REVIEW OF PAPERS

With the intention of providing a collage of high-quality papers presenting crucial aspects on this topic, this special issue will be open to the entire research community in interest. 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. Interested researchers are invited to submit their unpublished work via the submission system <https://mc.manuscriptcentral.com/itsm>.