IEEE Transactions on Sustainable Computing

Special Issue on

**Orchestrating Sustainable Smart Cities:**
*Methods and Techniques for Intelligence from clouds to edges*

*Editor-in-Chief: Prof. Albert Y. Zomaya*

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*** Call for Papers ***

The staggering exponential increase in urbanization is posing unprecedented challenges to cities. Every day, urban areas grow by almost 150,000 people, either due to migration or births. In addition, due to factors of climate changes and other environmental pressures, cities are required to become “smart” to promote a thriving culture and achieve economical, social and environmental sustainability. Smart cities can be seen as wide-scale concord of internet of things, with sensors monitoring cyber and physical indicators and with actuators dynamically changing the complex urban environment in some way and cloud computing offerings the affordably to tap into enormous computing power. Historically, cities have viewed and addressed their challenges in siloes, by industry or region, for instance. The technological barriers so far have rendered cities unable to manage and scale urban services holistically, digitally and across departments. But that’s all changing. Motivated by economic, social, environmental and technological changes, Smart Cities are being constructed upon intelligent infrastructures spanning many application domains such as energy, healthcare, and transportation. Disaster Management, Security & Surveillance, Asset Management, Building Management, Emergency Alert Management, Smart Parking, Meteorological Data Management, Water Quality Management, Solid Waste Management, Early Health Warning System, Real Time Incident Notification, Irrigation Telemanagement, Smart Lighting, Property Information Management, Biometrics system and Compliant Registration System are some examples of such applications.

The advent of these societal-scale infrastructures brings with it new opportunities for improving efficiency while simultaneously exposing novel vulnerabilities. For example, smart metering technologies enables real-time capture of streaming data that could potentially be used to customize offerings to consumers by employing machine learning algorithms. On the other hand, the availability of this fine-grained consumer/system data and the increased number of access points to the broader system expose new privacy and security risks. In order to develop sustainable smart city solutions, Smart cities must have an open, flexible and secure platform on which consolidate siloes and services at the edge connect intelligently with the cloud and vice-versa. As connected things grow, we will witness a significant increase in data produced at the edge that will require new computer processing methods and techniques. These techniques needs to deluge in a distributed way across a citywide network transferring intelligence between cloud and things and connect people, processes, data, things and infrastructure.

These challenges represent a huge opportunity for a paradigm shift that will require the need for data processing, analysis, and security close to the connected “things” i.e. at the edge of the network. The paradigm shift will lead to an explosive growth of independent gateways, repeaters, and systems that will benefit from being positioned above the fray at the street level to avoid vandalism and provide a clear vantage point for data capture and transmission, so fastening them to lamp posts, poles or walls is advantageous and also allows them to receive power and city maintenance. This paradigm needs to be architected in a way that is easy to operate and
dramatically simplifies the management of city services through scalable orchestration and proper automation. Such a platform must allow management of the different tenants within the smart city ecosystem in a uniform way. It should also have a suitable policy framework, letting specific stakeholders access data produced by other tenants, and analyze and extract value from the data. In order to address these challenges, this special issue solicits high quality original research papers (including smart city experience papers) that make significant contributions to the state-of-the-art in “method and techniques to build sustainable smart city solutions” research area.

Topics of interest include (but not limited to):

- Interoperability to manage systems of systems (horizontal and vertical integration)
- New approaches to orchestrate sustainable smart cities
- Cloud to edge applications and challenges
- Data Management for Sustainable smart cities
- Mobile edge computing: from cloud to far edge
- Smart Cities Platform is an effective integration of physical, digital and human systems
- Software and tools for Smart cities to support clouds to edge intelligence
- Monitoring and orchestrating cloud to edge resources
- Privacy and Security for clouds to edge
- Value chain solutions for Sustainable smart cities

Schedule

Submission due date: 15 July 2016
First Round Notification: 15 September 2016
Final Notification of acceptance: 15 October 2016
Submission of final manuscript: 30 October 2016
Publication date: TBD

Major Guidelines

The special issue invites original research papers that make significant contributions to the state-of-the-art in “Big Data and Cloud of Things” research area.

We seek submission of papers that present new, original and innovative ideas for the "first" time in IEEE T-SUSC. That means, submission of "extended versions" of already published works (e.g., conference/workshop papers) is not encouraged unless they contain significant number of "new and original" ideas/contributions along with more than 50% brand "new" material. If you are submitting an extended version, you SHOULD submit a cover letter/document detailing (1) the "Summary of Differences" between IEEE T-SUSC paper and earlier paper, (2) a clear listing of "new and original" ideas/contributions in IEEE T-SUSC paper (identifying sections where they are proposed/presented), and (3) confirming the percentage of new material. Otherwise, submission will be "desk" rejected without any reviews.

Every submitted paper will receive at least two reviews. The editorial review committee will include well known experts in the area of Grid, Cloud, Fog, Big Data, and Internet of Things.

Author Submission Guidelines

Before submitting your manuscript, please ensure you have carefully read the Instructions for Authors for IEEE Transactions on Sustainable Computing (T-SUSC). The complete manuscript should be submitted through T-SUSC’s submission system. To ensure that you submit to the correct special issue, please select “Special Issue on Orchestrating Sustainable Smart
Cities: Methods and Techniques for Intelligence from Clouds to Edges” in the menu upon submission. In your cover letter, please also clearly mention the title of the SI.

Manuscript length

Regular papers should not exceed the length of 14 pages in IEEE Transaction format, including figures and tables. Please note, the special issue’s page limit is different from IEEE T-SUSC regular paper submissions. Papers that exceed the length of 14 pages may not be considered for review and publication.

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