

SPECIAL ISSUE

SMART CITIES

Edited by G. Betis, C. G. Cassandras, and C. A. Nucci

518 Transactive Control in Smart Cities

By A. M. Annaswamy, Y. Guan, H. E. Tseng, H. Zhou, T. Phan, and D. Yanakiev
|INVITED PAPER| This paper explores the use of dynamic tariffs in order to increase the quality of urban mobility through transactive control.

538 The Price of Anarchy in Transportation Networks: Data-Driven Evaluation and Reduction Strategies

By J. Zhang, S. Pourazarm, C. G. Cassandras, and I. Ch. Paschalidis
|INVITED PAPER| This paper studies transportation networks under two different routing policies, the selfish user-centric routing one and the socially optimal system-centric one, and proposes an index, the Price of Anarchy (PoA), to increase efficiency.

554 Information Patterns in the Modeling and Design of Mobility Management Services

By A. Keiner, N. Laurent-Brouty, F. Farokhi, H. Signargout, V. Cvetkovic, A. M. Bayen, and K. H. Johansson
|INVITED PAPER| The focus of this paper is on the increasing impact new mobility services have on traffic patterns and transportation efficiency in general.

577 Crowdsensing Framework for Monitoring Bridge Vibrations Using Moving Smartphones

By T. J. Matarazzo, P. Santi, S. N. Pakzad, K. Carter, C. Ratti, B. Moaveni, C. Osgood, and N. Jacob
|INVITED PAPER| This paper discusses new services that can be delivered to urban environments through big data generated by the public's smartphones, enhancing the relationship between a city and its infrastructure.

594 Versatile Modeling Platform for Cooperative Energy Management Systems in Smart Cities

By Y. Hayashi, Y. Fujimoto, H. Ishii, Y. Takenobu, H. Kikusato, S. Yoshizawa, Y. Amano, S.-I. Tanabe, Y. Yamaguchi, Y. Shimoda, J. Yoshinaga, M. Watanabe, S. Sasaki, T. Koike, H.-A. Jacobsen, and K. Tomsovic
|INVITED PAPER| This paper presents a modeling platform, including cooperative energy management systems (EMSs), which reproduces the model of a smart distribution network by using data obtained from the real world.

613 Smart (Electricity) Grids for Smart Cities: Assessing Roles and Societal Impacts

By M. Masera, E. F. Bompard, F. Profumo, and N. Hadjsaid
|INVITED PAPER| This paper discusses the main impact that smart grid deployment has, in different respects, on smart cities and then presents a methodology for an extended cost benefit analysis.

626 City-Friendly Smart Network Technologies and Infrastructures: The Spanish Experience

By A. Gómez-Expósito, A. Arcos-Vargas, J. M. Maza-Ortega, J. A. Rosendo-Macías, G. Alvarez-Cordero, S. Carillo-Aparicio, J. González-Lara, D. Morales-Wagner, and T. González-García
|INVITED PAPER| This paper reviews the fast evolution of power systems of the last decade and illustrates, through featured success stories, how several smart grid concepts and technologies have been put into practice in Spain.

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DEPARTMENTS

507 POINT OF VIEW

The IEEE Smart Cities Initiative—Accelerating the Smartification Process for the 21st Century Cities
By G. Betis, V. M. Larios, D. Petri, X. Wu, A. Deacon, and A. Hayar

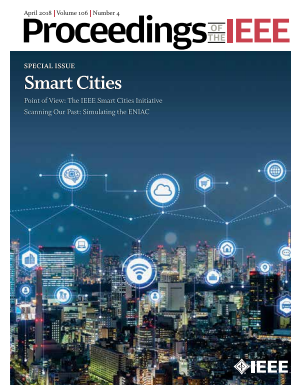
513 SCANNING THE ISSUE

Smart Cities
By G. Betis, C. G. Cassandras, and C. A. Nucci

761 SCANNING OUR PAST

Simulating the ENIAC
By B. L. Stuart

773 FUTURE SPECIAL ISSUE/SPECIAL SECTIONS



On the Cover: Our cover image this month shows an artist's rendition of a "smart city," achieved by integrating information and communication technology, and various physical devices connected to the network (the Internet of things or IoT) over a city landscape.

SPECIAL ISSUE: Smart Cities

661 Data-Enabled Building Energy Savings (D-E BES)

By S. Abrol, A. Mehmani, M. Kerman, C. J. Meinrenken, and P. J. Culligan

|INVITED PAPER| This paper illustrates that creating an affinity between a building resident's thermal preferences and a building apartment's unregulated thermal environment represents alternative means of generating an energy-efficient environment for multifamily, residential buildings.

680 Smart Governance for Smart Cities

By M. Razaghi and M. Finger

|INVITED PAPER| This conceptual paper brings together insights from sociotechnical systems, systems theory, and governance literature to shed light on why city administrations should closely follow these changes and adapt the governance approaches accordingly.

690 Predicting Chronic Disease Hospitalizations from Electronic Health Records: An Interpretable Classification Approach

By T. S. Brisimi, T. Xu, T. Wang, W. Dai, W. G. Adams, and I. Ch. Paschalidis

|INVITED PAPER| This paper focuses on the two leading clusters of chronic disease, heart disease and diabetes, and develops data-driven methods to predict hospitalizations due to these conditions, as urban living in modern large cities has significant adverse effects on health.

708 Using Smart City Technology to Make Healthcare Smarter

By D. J. Cook, G. Duncan, G. Sprint, and R. L. Fritz

|INVITED PAPER| This paper discusses how smart city ICT can also improve healthcare effectiveness and lower healthcare cost for smart city residents.

723 Predicting Frailty Condition in Elderly Using Multidimensional Socioclinical Databases

By F. Bertini, G. Bergami, D. Montesi, G. Veronese, G. Marchesini, and P. Pandolfi

|INVITED PAPER| This paper proposes two different predictive models for frailty by exploiting a number of socioclinical databases. In the last decades, life expectancy has increased globally, leading to various age-related issues in almost all developed countries, which this article is aiming to address in part.

738 The Need of Multidisciplinary Approaches and Engineering Tools for the Development and Implementation of the Smart City Paradigm

By O. Andrisano, I. Bartolini, P. Bellavista, A. Boeri, L. Bononi, A. Borghetti, A. Brath, G. E. Corazza, A. Corradi, S. de Miranda, F. Fava, L. Foschini, G. Leoni, D. Longo, M. Milano, F. Napolitano, C. A. Nucci, G. Pasolini, M. Patella, T. S. Cinotti, D. Tarchi, F. Ubertini, and D. Vigo

|INVITED PAPER| This paper is motivated by the concept that the successful, effective, and sustainable implementation of the smart city paradigm requires a multidisciplinary approach and a strict cooperation among researchers with different, complementary interests.

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