

P R O G R A M
of the IFAC Workshop Control for Smart Cities
CSC 2022 (held online),
27-30 June 2022, Sozopol, Bulgaria

Day 1 (Monday, 27 June 2022)

PhD Workshop

13.30 – 15.30 EEST (UTC+3h) PhD1 Workshop

Coordinated Optimization of EVs and Multiple Buildings with Renewable Energy
Fengxia Liu

Urban CFD wind simulations for smart city planning
Radostin Mitkov

Optimal Planning of Internet Data Centers Decarbonized by Hydrogen-Water-Based Energy System
Jinhui Liu

Urban objects detection from geo-spatial data for smart city control
Angel Spasov

Identification of System Vulnerability under a Smart Sensor Attack via Attack Model Reduction
Ruochen Tai

Self-organization of models of complex systems
Milena Piryanova

16.00 – 18.00 EEST (UTC+3h) PhD2 Workshop

On Multi-Scale Event-Based Optimization
Teng Long

In-door pollutant dispersion and HVAC optimization using CFD
Mariya Pantusheva

Event-driven Safety-critical Policy Evaluation and Improvement
Xinze Jin

Smart Water Infrastructure Technologies to implement Smart City Project in Pristina
Luan Jusufi

Ordering-Flexible Multi-Robot Coordination and Application with Unmanned Surface Vessels
Bin-Bin Hu

Day 2 (Tuesday, 28 June 2022)

8.30 – 9.00 EEST (UTC+3h) OP Opening Ceremony

9.00 – 10.00 EEST (UTC+3h) PIP Plenary Session 1

Decision and Control Techniques for Energy Management of Smart Cities
Mariagrazia Dotoli

Scientific Sessions

10.00 – 12.00 EEST (UTC+3h) SIS Cyber-Physical Systems

Complexity Assessment of Research Space for Smart City Cybersecurity
Willian Dimitrov, Kamen Spasov, Ivan Trenchev, Svetlana Syarova

An Actor-Critic Method for Simulation-Based Optimization
Kuo Li, Qing-Shan Jia, Jiaqi Yan

An Accelerated Safety Assessment Method for Control Policies of Autonomous Vehicles in Open Environments
Siwei Liu, Qing-Shan Jia

Dynamic Path Planning for Mobile Robots with Deep Reinforcement Learning
Laiyi Yang, Jing Bi, Haitao Yuan

Architectures of cost-effective system for COVID-19 patient monitoring
Angel Ivanov, Kocho Hrisafov, Nayden Chivarov, Ivana Budinska

13.30 – 15.30 EEST (UTC+3h) S2S CPS and Optimization

Algorithms for Cost Oriented Cyber Physical System (COCPS) for intelligent control of animal husbandry farms
Stefan Chivarov, Kristian Dimitrov, Nayden Chivarov

Cyber-physical system for intelligent control of infrared heating
D. Chikurtev, V. Ivanov, V. Yosifova, D. Dimitrov

Exploring the Usability of Process Mining in Smart City
Amelia Badica, Costin Badica, Ion Buligiu, Liviu-Ion Ciora

Evaluation of social facilities coverage: A case study of Sofia city
Stoyan Boyukliyski, Dessislava Petrova-Antonova, Sanjay Somanath

A Crowdsourcing Renewable Energy Delivery Framework with Dynamic Pricing and Routing Policy
Zhanglin Shangguan, Bo Yang, Fengkun Gao, Jingzheng Tu, Yuliang Tang

Edge-to-Cloud Collaborative for QoS Guarantee of Smart Cities
Jiaju Wang, Wei Jian, Baochuan Fu

16.00 – 18.00 EEST (UTC+3h) S3S Optimization

Sustainable suppliers evaluation in the waste management sector: the case of a leading Sicilian enterprise

Valentina Cinnirella, Silvia Carpitella, Antonio Coco, Davide Domenico Maria Frangiamore, Rossella Pezzino de Geronimo

Geographical Information Systems and Remote Sensing Techniques to Reduce the Impact of Natural Disasters in Smart Cities

Constantinos Nefros, Gianna Kitsara, Constantinos Loupasakis

Reliability analysis and optimization of a power grid system with redundancy, maintenance and protection

Hui Xiao, Minhao Cao

Source Estimation: Variational Method Versus Machine Learning Applied to Urban Air Pollution

R. Lopez-Ferber, S. Leirens, D. Georges

Electrical Grid Flexibility via Heat Pump and Thermal Storage Control

Joy El Feghali, Guillaume Sandoz, Herve Gueguen, Pierre Haessig, Damien Faille, Hassan Bouia, Dominique Croteau

Day 3 (Wednesday, 29 June 2022)

9.00 – 10.00 EEST (UTC+3h) P2P Plenary Session 2

Traffic Control using Automated Vehicles: New Opportunities for Distributed Sensing, Actuation, and Learning

Karl H. Johansson

Scientific Sessions

10.00 – 12.00 EEST (UTC+3h) S4S Smart Buildings

Using IoT for Automated Heating of a Smart Home by Means of OpenHAB Software Platform

Daniela I. Borissova, Victor K. Danev, Milan B. Rashevski, Ivan G. Garvanov, Radoslav D. Yoshinov, Magdalena Z. Garvanova

Double-Layered Model Predictive Control for Building HVAC Systems Considering Thermal Comfort

Chunxiang Zhou, Lei Yang, Jianchen Hu, Zhanbo Xu, Xiaohong Guan

Coordinated Optimization for Energy Efficient Thermal Management of 5G Base Station Site

Yaping Liu, Zhanbo Xu, Jiang Wu, Dongyang Wei, Xiaohong Guan

The Role of Internet of Things in Smart Education

Valentina Terzieva, Svetozar Ilchev, Katia Todorova

Building Cooling load prediction based on LightGBM

RuoChen Zhao, Dong Wei, YiBing Ran, Guang Zhou, YuChen Jia, ShiLun Zhu, YouQuan He

13.30 – 15.30 EEST (UTC+3h) S5S Smart Grids

A Moth-Flame Optimized Robust PID controller for a SEPIC in Photovoltaic Applications

Elvin Yusubov, Lala Bekirova

Blockchain-based smart microgrid power transaction model

Wei Jian, Baochuan Fu, Zhengtian Wu, Baoping Jiang, Zhengguang Liu, Xingyan Chen

Quantum reinforcement learning method and application based on value function

Yi-Pei Liu, Qing-Shan Jia, Xu Wang

Reinforcement Learning for Coordinating Multi-Microgrids in the Distribution Network through Real-Time Pricing

Gaochen Cui, Qing-Shan Jia, Xiaohong Guan

Public acceptance and willingness to pay for renewable energy in Bulgaria
Mariya Trifonova

16.00 – 18.00 EEST (UTC+3h) S6S Intelligent Transportation

Fuzzy Control of Traffic Junctions in Oversaturated Urban Networks
Yordanka Boneva, Boriana Vatchova, Alexander Gegov

Case-Based Reasoning Application for Parking Guidance Systems
Neyko Neykov, Svetlana Stefanova

On-Road Safety Prompt Framework for Platoon
Nanbin Zhao, Bohui Wang, Rong Su

Predicting Travel Times for On-demand Public Transport in Sofia
Angel Marchev, Kaloyan Haralampiev, Boyan Lomev

Intra City Transport On-demand
Nikolay Netov, Kamen Spassov

Day 4 (Thursday, 30 June 2022)

9.00 – 10.00 EEST (UTC+3h) P3P Plenary Session 3

Event-Based Reinforcement Learning for Cyber Physical Energy Systems - Smart Buildings, Grid, and Cities
Qing-Shan Jia

Scientific Session

10.00 – 12.00 EEST (UTC+3) S7S Modeling and Simulation

Roof Segmentation Towards Digital Twin Generation in LoD2+ Using Deep Learning
N. Kolibarov, D. Wastberg, V. Naserentin, D. Petrova-Antonova, S. Ilieva, A. Logg

Using the Octree Immersed Boundary Method for urban wind CFD simulations
R. Mitkov, M. Pantusheva, V. Naserentin, P. O. Hristov, D. Wastberg, F. Hunger, A. Mark, D. Petrova-Antonova, F. Edelvik, A. Logg

Combining Open Source and Commercial Tools in Digital Twin for Cities Generation
V. Naserentin, S. Somanath, O. Eleftheriou, A. Logg

Carbon Footprint Estimation and Optimization of Computing Task Migration Project
Xiao Hu, Qing-Shan Jia

Prediction of the Air Pollution by Geo-locations in Sofia
Boryana Bogdanova, Angel Marchev, Vladimir Zakov, Denis Stefanov, Kiril Genov

12.00 – 12.30 EEST (UTC+3h) CL Closing Ceremony