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Special Issue

Computer Vision and Visual Analytics for Smart World

Guest editors:

Dr. BalaAnand Muthu. [Lead Guest Editor] Associate Professor, Department of Computer Science & Engineering, Adhiyamaan College of Engineering, India

Email: balavdy@gmail.com; balaanand@ieee.org

Dr. Imran Shafique Ansari. James Watt School of Engineering, University of Glasgow, United Kingdom

Email: Imran.Ansari@glasgow.ac.uk

Dr. Xuan Liu (yusuf). College of Information Engineering (College of Artificial Intelligence), Yangzhou University, China

Email: yusuf@yzu.edu.cn

Summary

In today's scenario of modern computing, smart world applications are drawing attention to the revolutionary success of artificial intelligence (AI) based systems for enhanced services, better communication, and transparent interaction processes. Computer vision (CV) is one of those dynamic elements that use sequential integration of AI techniques such as the acquisition of real-world data, detecting images for processing data, and analyzing matching features. Also, many features like facial unlock application, iris recognition, and gesture recognition have taken CV to the next level. Recently, CV is playing an essential role in surveillance systems such as monitoring people and detecting anonymous activities in smart environments. Especially during emergency or pandemic situation, CV plays a prominent role in recognizing the temperatures through thermal scanners, measuring & identifies the social distance in public places, and detecting faces with masks. In the past few years, these applications have created a massive amount of data on daily basis in various domains. The data generated by these applications faces difficulties to process, and sometimes lacks effective usage in the particular field. Hence, to overcome the challenges in CV, Visual Analytics (VA) came into existence to facilitate data to analyze and visualize.

A smart environment is making everyone to shift from traditional computing platform to the new computing paradigm (Pervasive/Cloud/Ubiquitous). Recently, people are computing every time on different data to visualize, analyze, and convert the data to another form. There are numerous applications in the smart world, such as autonomous vehicles, e-health care, crowd monitoring, and aerial survey through satellite missions. Besides, VA provides different techniques to combine the strengths of humans and computers to digitalize the world. Also, VA offers different graphical user interfaces, statistical reports, interactive devices, and data management services to enhance the growth of the smart world. Moreover, integration of CV and VA provides an outstanding, cutting-edge technology for researchers and engineers to share and examine innovations in the digitalized smart world and therefore make a positive contribution to the environment. In this perspective, this special issue aims to enhance the understandings, discover the challenges, conflicts, and existing gaps in science, technologies, applications, and related types of the smart world. We welcome researchers and practitioners from various disciplines to present their novel and innovative works on the computer vision and visual analytics for smart world with tools and new theories contributing to the development of digital applications.

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Suggested Topics

Papers are welcomed on the following topics but not confined to:

- Pervasive urban applications in the design of future smart environments
- CV-based systems for microscopic image analysis
- VA for health care systems in the smart environment during a pandemic situation
- Real-time video surveillance (indoor/outdoor)
- Role of urban areas mapping and navigation systems in VA
- Crowd behavior analysis and services using CV and VA
- CV and VA for smart parking, traffic monitoring and violation detection in smart cities
- Computer vision for real-time human motion tracking
- Design of CV-based automatic robot assistance systems in urban areas
- Visual Analytics for Data representations, transformation, and modeling for smart infrastructure
- Modeling smart architectures for real-time VA tasks
- Advanced biometric recognition, object detection, vehicle license plate recognition, visual tracking using CV and VA
- Real-time CV-based systems for sustainable transportation in smart environment
- CV and VA for fostering the evolutions of modern living and working in smart environments
- Applications of CV and VA tools for future smart world
- Use cases and case studies for sustainable smart world

Important Dates

20 October 2021
Paper Submission Deadline

24 January 2022
Author notification

13 April 2022
Revised papers submission

25 June 2022
Final Acceptance

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