Mobile Information Systems

Special Issue on
Mobile Edge Computing in Citizen Science

CALL FOR PAPERS

Citizen science refers to scientific research involving the public, including non-professional scientists, science enthusiasts, and volunteers. This includes exploring scientific problems, developing new technologies, and collecting and analyzing data. Similarly, public science has been defined when "the systematic collection and analysis of data; developing technology; the testing of natural phenomena, and the emission of these activities, has been done mainly by hobby-based researchers." With the improvement of mobile device performance, mobile edge computing (MEC) has emerged as a paradigm for gathering information about the physical world. Using smartphones, networked vehicles, and other sensor-rich mobile, portable, and wearable devices, massive volumes of data can be gathered, converged, and mined to enable applications in intelligent traffic, environmental monitoring, urban planning, or public safety management, amongst many others. Mobile edge computing can therefore play an important role in citizen science.

However, due to the diversity of mobile devices, the complexity of computing tasks, dynamic environment perception, and the cognitive tasks of accuracy and real-time requirements, the current research in mobile edge computing still faces many challenges, such as multiple modal data fusion, computational optimization and constraints, accelerated and lightweight accurate calculation methods, low power computing paradigm research, and industrial application oriented computing design. These problems are complex problems in the areas of integrated intelligent algorithm design, hardware circuit development, sensor design, and distributed computing, which seriously restrict the development of citizen science.

The aim of this Special Issue is to collect the latest high-quality original manuscripts within the research fields of optimization of distributed networked systems, multimodal data fusion, lightweight sensing methods, mobile crowdsourcing, sensing data storage and computation, optimization and control techniques, algorithms, experimental tests, and applications. All original papers related to the theoretical methods and their applications for the optimization and control of complex energy systems are encouraged. Both original research and review articles are welcome.

Potential topics include but are not limited to the following:

- Complexity of computing tasks to handle the diversity of sensing devices in citizen science
- Multiple modal data fusion for dynamic environment perception in citizen science
- Economic or performance tradeoffs for MEC in citizen science
- Modeling crowdsensed data cost and learned data quality for MEC in citizen science
- Privacy protection and incentive mechanisms for MEC in citizen science
- Green computing for MEC in citizen science
- Intelligence algorithm design for MEC in citizen science
- Learning-assisted optimization for MEC in citizen science
- Problem modeling and framework development for MEC in citizen science
- Novel applications and systems for MEC in citizen science
- Infrastructure and platforms for MEC-enabled citizen science
- Scalability and interoperability for MEC-enabled citizen science
- Performance evaluation of large-scale deployment environments for MEC-enabled citizen science

Authors can submit their manuscripts through the Manuscript Tracking System at https://review.hindawi.com/submit?specialIssue=587979.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor
Zhiyong Yu, Fuzhou University, Fuzhou, China
yuzhiyong@fzu.edu.cn

Guest Editors
Tamer Nadeem, Virginia Commonwealth University, Richmond, USA
tnadeem@vcu.edu

Tianzhang Xing, Northwest University, Xi'an, China
xtz@nwu.edu.cn

Submission Deadline
Friday, 17 September 2021

Publication Date
February 2022