

CALL FOR PAPERS

Big data needs new processing modes to own stronger decision-making power, insight discovery, the large volume and high growth of process optimization ability, and the diversified information assets. As the information technology of a new generation based on Internet of Things, cloud computing, and mobile internet, big data realizes the record and collection of all data produced in the whole life cycle of the existence and evolutionary process of things. It starts from the angle of completely expressing a thing and a system to express the coupling relationship between things. When the data of panorama and whole life cycle is enough big and the system component structure and the static data and dynamic data of each individual are recorded, the big data can integrally depict the complicated system and the emerging phenomena.

Viktor Mayer-Schönberger proposed the transformation of three thoughts in the big data era: it is not random samples but the whole data; it is not accuracy but complexity; and it is not causality but correlativity. “The whole data” refers to the transformation from local to overall thought, taking all data (big data) as analysis objects. “Complexity” means to accept the complexity and inaccuracy of data. The transformation from causality to correlativity emphasizes more on correlation to make data itself reveal the rules. It is closely related to the understanding of things by complex scientific thinking, which is also the integral thinking, relational thinking, and dynamic thinking.

The analysis technology of big data is the key to exploring the hidden value in the big data. The traditional scientific analysis method records the samples of the thing statuses, which is a method of small data, and perceives things based on small sample data, mathematical induction, and logical induction. But such a method cannot effectively solve complexity problems. In the big data era, the quantitative data description of complex huge system is no longer the mere experimental sample data, but the full scene data of the overall state. Therefore, data analysis should adopt complex scientific intelligent analysis method for modeling and simulating, utilize and constantly optimize big data for machine learning, and analyze and study the self-organizing and evolving rules of complex systems.

This special issue calls for high-quality, up-to-date technology related to big data analytics for complexity issue of smart cities and serves as a forum for researchers all over the world to discuss their works and recent advances in this field. In particular, the special issue is going to showcase the most recent achievements and developments in complexity problem discovery and exploration. Both theoretical studies and state-of-the-art practical applications are welcome for submission. All submitted papers will be peer-reviewed and selected on the basis of both their quality and their relevance to the theme of this special issue.

Potential topics include but are not limited to the following:

- ▶ Development of science of complexity
- ▶ New generation of information technology and the big data technology under innovative 2.0 environment
- ▶ Solutions to the traffic big data problems
- ▶ Handle complexities with big data as the new technology
- ▶ Development of multimedia technology under big data background
- ▶ Strategic position of big data in the urban management
- ▶ Big data strengthens open data and social involvement
- ▶ Big data assists urban management and social management
- ▶ Open data and privacy protection under big data background
- ▶ Urban complexity risks under big data background
- ▶ Numerical simulation and modelling of complexity problems and models

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/complexity/cpsc/>.

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

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