Letter from the Special Issue Editors

Most data related to people and the built world originates in urban settings. There is increasing demand to capture and exploit this data to support efforts in areas such as Smart Cities, City Science and Intelligent Transportation Systems. *Urban informatics* deals with the collection, organization, dissemination and analysis of urban information used in such applications. However, the dramatic growth in the volume of this urban data creates challenges for existing data-management and analysis techniques. The collected data is also increasingly diverse, with a wide variety of sensor, GIS, imagery and graph data arising in cities. To address these challenges, urban informatics requires development of advanced data-management approaches, analysis methods, and visualization techniques. It also provides an opportunity to confront the "Variety" axis of Big Data head on.

The contributions in this issue cross the spectrum of urban information, from its origin, to archiving and retrieval, to analysis and visualization.

The first two papers deal with sources (and uses) of urban data. The first (by Ilarri et al.) looks at new collection modalities for urban data, specifically collaborative sensing for urban transportation. It classifies different sensor types, and describes their use in parking, traffic-information and trajectory-data settings. It also considers challenges and opportunities in this area, including encouraging user cooperation, data quality and management of trust and privacy. The second (by Sahuguet et al.), on Open Civic Data, focuses on the (re)use of data that has already been collected, often by public agencies, utilities and other civic institutions. It begins with examples of the use of civic data in areas as diverse as identifying mortgage fraud, economic development and crisis management (and also recounts some "horror stories" involving civic data). The authors then turn to the technical challenges of Open Civic Data, including actually opening up the data, making it discoverable, and handling time and space as first-class citizens (a theme that runs through all the papers).

The third paper (by Catlett et al.) concentrates on storing and serving open information that comes from municipal, state and federal sources, in a way that supports easy data discovery and exploration. The authors present Plenario, a platform for making such information available to users who are not expert data scientists, and who are not prepared to spend days or weeks in preparing data. They report on two early use cases for Plenario, the lessons learned from them, and challenges and opportunities for further development.

The fourth paper looks at improving analysis of urban data. The authors want to go beyond batch-oriented queries aimed at a particular pre-determined questions to more interactive and open-ended exploration of urban data sets. They describe a visual query interface that is particularly oriented to discerning patterns in the kinds of spatial and temporal datasets that are ubiquitous in the urban setting. The paper illustrates the approach with taxi-trip records (an example of Open Civic Data), and describes an indexing technique that support working with spatial-temporal data at scale.

We hope this selection of papers helps gives readers a flavor of the range of applications and challenges arising in urban informatics, and perhaps inspires some to take up research in this area.

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