Communications in Computer and Information Science 926

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Big Social Data and Urban Computing

First Workshop, BiDU 2018
Rio de Janeiro, Brazil, August 31, 2018
Revised Selected Papers

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BiDU – Workshop on Big Social Data and Urban Computing

In urban spaces, there is a huge amount of heterogeneous data being generated by a diversity of sources, such as sensors, devices, vehicles, smart buildings, and others. Although they are used to monitor basic services, they can provide significant information about human interactions and populational dynamics. Moreover, people constantly interact with each other through social media services, and much of interpersonal interaction is nowadays mediated by information technology. Citizens consume and share information about their cities—such as problems, events, ideas, suggestions, criticisms, and demands—acting as "human sensors," forming opinions and participating in the city evolution.

This data explosion has resulted in the emerging topic of "Big Social Data." Broadly speaking, big social data refers to large data volumes that relate to people interactions or describe their behaviors, needs, and patterns. The volume, the production and spreading velocity, and the variety (providing semantic richness) of such data open up enormous possibilities to utilize and analyze them for the understanding of urban spaces, tackling the major issues that these localities face, and helping in the creation of smarter and sustainable cities.

Urban computing is a process of acquisition, treatment, and analysis of big and heterogeneous data to better understand how city ecosystems work. This understanding can remedy a wide range of issues affecting the everyday lives of citizens and the long-term health and efficiency of cities. The use of big social data in urban computing helps us to understand the nature of urban phenomena and even predict the future of cities, creating solutions to reduce costs and optimize resource consumption, improve population mobility, provide higher human life quality, enhance decision-making in emergency scenarios, and engage more effectively with citizens for a continuous city planning.

This workshop, which was held in conjunction with 44th International Conference on Very Large Data Bases (VLDB), in Rio de Janeiro, and connected works about the use and treatment of big social data in multidisciplinary research spanning across computer science. All papers went through a double-blind review process, with at least three reviewers, and were reviewed according to the following criteria: adequacy of workshop scope, relevance, technical quality, clarity, originality, and evaluation of results. The papers were categorized in: full papers (Research, Experiments and Case Studies, Industry and Application, and Dataset papers) and short papers (Vision Papers). We received 40 submissions (full papers: 30, vision papers: 10), of which we selected 11 full papers and 16 posters. All the full papers were orally presented and distributed in the sections: Session 1 – Urban Mobility, Session 2 – Urban Sensing, Session 3 – Contemporary Social Problems, and Session 4 – Collaboration and Crowdsourcing.

Moreover, the BiDU workshop had a keynote entitled "Landscape of Practical Blockchain Systems and Their Applications" by Dr. C. Mohan (IBM Almaden Research Center & Tsinghua University). Also, the panel "Social Computing for Smarter Cities" featured Sihem Amer-Yahia (Laboratoire d'Informatique de Grenoble), Elaine Rabello (FIOCRUZ and Universidade do Estado do Rio de Janeiro), Gabriela Ruberg (Central Bank of Brazil), Bill Howe (University of Washington), and moderated by Mirella Moro (Universidade Federal de Minas Gerais). We thank these inspiring speakers for accepting our invitation and enlightening this event.

We would like to sincerely thank the VLDB organization for the constant help and support, the Program Committee members and reviewers for their excellent work and invaluable support during the review process, and the authors of the submitted papers for their very interesting and high-quality contributions. Most importantly, we thank all the attendees who ensured BiDU could be an appropriate forum where the sharing of knowledge and experiences of big social data and urban computing promoted new advances in both research and development. We also thank the Springer team, especially Mr. Jorge Nakahara.

We hope that readers enjoy the papers included in the proceedings.

December 2018   Jonice Oliveira
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