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Big Data Systems on Emerging Architectures
Special Issue for IEEE Transactions on Big Data

The continued evolution of computing hardware and infrastructure imposes new challenges and bottlenecks to big data management. Over the last few years there has been a renewed interest in the area of (big) data systems on emerging hardware. The opportunities and challenges from emerging computing systems have been raised different scales, from a single machine to thousands of machines. The need for effectively utilizing computing resources creates new technologies and research directions: from conventional ones (e.g., cluster computing, in-memory computing), to more recent ones (e.g., GPGPU, many-core processors, and NVRAM). In addition to performance, many other system features are important for big data applications, like energy consumption and total ownership costs. For a specific application domain such as graph processing and deep learning, the design and development of novel systems on emerging hardware will create the insight into new solution approaches of the application domain and even further. Thus, there is a need to fundamentally address all the above-mentioned issues in big data systems. *IEEE Transaction on Big Data (TBD)* seeks original manuscripts for a Special Issue on the theme - ***Big Data Systems on Emerging Architectures*** scheduled to appear in an issue of 2017.

Topics of interest include but are not limited to:

- System optimization for novel hierarchical memory systems
- Hardware systems and hardware-software co-design
- Novel usage of co-processors in data-intensive applications (graph processing and deep learning etc.)
- Novel applications of new storage technologies (flash, PCM, NVRAM etc.) to data management
- New architectures for low-power computing and embedded devices
- New data systems and applications on parallel architectures (multi-/many-core processors, FPGA etc)
- Algorithms, and data structures on modern hardware
- Databases and transactional memory systems
- Compiler and operating systems advances for data-intensive computing
- New benchmarks and experimental evaluations on modern hardware
- Data system designs and implementations on new-generation network interconnects
- New systems architecture (Automata processors, OpenPower etc.)
- Heterogeneous hardware in storage, processing and networks
- Main memory data processing
- Sustainable power management
- New industry and technology trends and their potential impact
- Resource management in heterogeneous systems including allocation and scheduling
- Scalable and reconfigurable challenges

Original articles must be submitted via IEEE TBD Manuscript Central at <https://mc.manuscriptcentral.com/tbd-cs>. Submitted articles must not have been previously published or currently submitted for journal publication elsewhere. Authors must adhere to IEEE TBD submission guidelines (<http://www.computer.org/web/tbd/author>). For more information, please contact the Guest Editor at [he.bingsheng\(at\)gmail\(dot\)com](mailto:he.bingsheng@gmail.com).

Important dates:

Oct 15, 2016 Oct 31, 2016 (firm)	Deadline for submission of papers
Jan 15, 2017	First decisions to authors
Feb 15, 2017	Revisions due (if needed)
March 15, 2017	Notification of final acceptance
April 2017	Publication materials due

Guest Editors:

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