Geospatial Applications of Big Data Analytics

The volume of data created by an ever increasing number of remote sensing platforms and the capability of modern platforms to collect data at ever increasing spatial, spectral, and radiometric resolutions currently exceeds petabytes of data per year and is only expected to increase. The variety of geospatial data available for adding valuable information to traditional remote sensing imagery, including social media and sensors as part of the so-called internet of things (IoT) promises to add information value if it can be effectively integrated. The velocity of all this information is critical, as the information value of all this information degrades if it can not be processed in a timely manner not only for military, intelligence, and other traditional consumers of geospatial data but also for the new breed of geospatial data consumers in areas such as business analysis and logistics. Recent developments in information technology commonly referred to as 'Big Data' along with the related fields of data science and analytics will need to be brought to bear in order to process, analyze and realize the value of the overwhelming amount of geospatial data the remote sensing community is capable of generating.

This special issue of *Photogrammetric Engineering and Remote Sensing (PE&RS)* will focus on the application of advances in Big Data analytic techniques to geospatial applications in the commercial, government and academic remote sensing communities. Papers covering topics including, but not limited to, the following are invited for consideration:

- Technologic advances in hardware, storage, data management, networking and computing models such as virtualization and cloud computing for geospatial applications.
- Creative uses of Big Data innovations such as MapReduce, Hadoop, Big Table and NoSQL in geospatial processing.
- Usage of human-created, machine-created, structured and unstructured data in geospatial analytics including the integration of geospatial information from non-imaging sensors and the Internet of Things (IoT) with more traditional forms of geospatial information.
- Discovery of patterns in large volumes of geospatial data through analytic techniques such as data mining and predictive analytics in applications such as human geography.
- Development of new processing algorithms to handle large volumes of data, for instance through application of functional programming languages such as Lisp, R, and Clojure to geospatial applications.
- Creation of new visualization products that increase the understanding of large and diverse forms of information.

Authors must prepare manuscripts according to the *PE&RS* Instructions to Authors, published in each issue of *PE&RS* and also available on the ASPRS Website at www.asprs.org/pers/AuthorInstructions . All submissions will be peer-reviewed in accordance with *PE&RS* policy. Because of page limits, not all submissions recommended for acceptance by the review panel may be included in the Special Issue. Under this circumstance, the guest editors will select the most relevant papers for inclusion in the special issue. Papers that are reviewed favorably, but will not fit within the Special Issue, can be revised and submitted for review as a new paper to the *PE&RS* Editor-in-Chief for possible publication in a future regular issue of *PE&RS*.

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