



CALL FOR PAPERS
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
Special Issue on
“Urban Scene Understanding and Modeling”

With the acceleration of urbanization, urban space continues to expand in three dimensions and urban scenarios become increasingly complex. Therefore, it is a great challenge to build smart/digital twin cities for effectively managing and operating large-scale cities at the macro and micro scales. Meanwhile, with the rapid development of aerial and ground sensors, multi-view and multi-temporal urban observation data (high-altitude satellite imagery, low and mid-altitude UAV imagery/laser point clouds, ground surveillance video, etc.) from local to global perspectives have become easily accessible. This has opened up new opportunities for collaboratively monitoring and analyzing urban three-dimensional space. However, existing methods are inadequate for mining and utilizing the multimodal scene data acquired by aerial-ground integrated observing systems. As a result, it is required to develop new methods and technologies for urban scene understanding and modelling, and thus transferring the multi-source and multimodal scene data into rich information and knowledge for urban geospatial cognition and analysis.

With the enrichment of data acquisition methods, the growth of computing power, and the widespread use of artificial intelligence technology, urban scene understanding and modeling has increasingly become an interdisciplinary research field in remote sensing, photogrammetry, machine learning, computer vision and computer graphics. This special issue invites submissions broadly contributing to urban scene understanding and modeling using multi-source and multi-modal remote sensing/close range scene data acquired from various platforms.

The broad topics include (but are not limited to):

- Sensor orientation and calibration: image matching, registration, structure-from-motion, SLAM, odometry, multi-sensor fusion
- Geometric modeling: multi-view stereo, LiDAR mapping, learning-based 3D modeling, indoor 3D mapping
- Urban scene understanding: line/edge detection, object detection and tracking, semantic segmentation, urban scene mapping with big spatial data, land-cover classification, change detection
- Urban scene knowledge representation and reasoning: spatial relations, semantic relations, time-spatio relations between urban elements at different scales
- Holistic understanding and modeling: semantic 3D modeling, HD-map generation, structured 3D modeling
- Cross-view modeling and understanding: aerial and ground view fusion, remote sensing and ground view fusion, big data understanding and machine learning

Schedule

Dec. 1st, 2022 Submission system opening

Jun. 30th, 2023 Submission system closing

Format

All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on <http://mc.manuscriptcentral.com/jstars>, using the Manuscript Central interface and select the “Urban Scene Understanding and Modeling” special issue manuscript type. Prospective authors should consult the site <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9082768> for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single spaced). Please visit http://www.ieee.org/publications_standards/publications/authors/author_templates.html to download a template for transactions. Please note that as of Jan. 1, 2020, IEEE J-STARS has become a fully open-access journal charging a flat publication fee \$1,250 per paper.

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