CALL FOR PAPERS

SPIE. SENSORS+ IMAGING

Conferences: 16 - 19 September 2024
Exhibition: 17–18 September 2024
Edinburgh International Conference Centre
Edinburgh, United Kingdom

Submit abstracts by
7 May 2024

Earth Resources and Environmental Remote Sensing/GIS Applications XV (RS108)

Conference Chairs: **Karsten Schulz,** Fraunhofer-Institut für Optronik, Systemtechnik und Bildauswertung (Germany); **Ulrich Michel,** ROSEN Creation Ctr. GmbH (Germany); **Konstantinos G. Nikolakopoulos,** Univ. of Patras (Greece)

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Satellite remote sensing has become a common tool to investigate the different fields of Earth and environmental sciences. The progress of the performance capabilities of the optoelectronic and radar devices mounted on-board remote sensing platforms have further improved the capability of instruments to acquire information about the Earth and its resources for global, regional and local assessments.

With the advent of new high-spatial and spectral resolution satellite and aircraft imagery new applications for large-scale mapping and monitoring have become possible. The integration with Geographic Information Systems (GIS) allows a synergistic processing of multi-source spatial data. The present conference will be an occasion to outline how scientists involved in the Earth and environmental studies can take advantage of new remote sensing techniques and the advances in spatial technology. Particular subjects are:

SENSORS AND PLATFORMS
- new sensor developments
- radiometric calibration studies
- geometric correction approaches
- mobile solutions
- simulation studies.

PROCESSING METHODOLOGIES
- fusion of multi-source and multi-scale data
- multitemporal remote sensing
- machine learning methods for remote sensing
- integration of remote sensing and GIS
- analysis of optical and thermal data
- hyperspectral analytical approaches
- 3D techniques: LIDAR and Stereo.

ENVIRONMENTAL MONITORING CONCEPTS
- land degradation studies
- natural hazards (floods, landslides)
- landscape modeling
- sustainability and planning
- coastal zone management
- interaction sea-land
- resource management
- global climate change.

HAZARD MITIGATION GEOLOGIC APPLICATIONS
- geological hazards, mine waste
- earthquakes and volcanoes
- lithological and mineral mapping
- mineral and petroleum exploration
- structural geology, tectonics
- hydrogeology.

INFRASTRUCTURES AND URBAN AREAS
- 3D urban modeling
- change detection
- remote sensing for urban information systems
- virtual city models
- urban feature extraction with high resolution SAR-sensors.

REMOTE SENSING FOR ARCHAEOLOGY, PRESERVATION OF CULTURAL AND NATURAL HERITAGE
- discovering hidden archaeologic sites with remotes sensing techniques
- generating digital twins of archaeologic monuments and sites
- ground penetrating sensing
- detection and monitoring of wildfires and illegal deforestation.

NEW: EARTH OBSERVATION USING GEE AND AUTOMATED METHODOLOGIES
- GEE applications generating digital twins of archaeologic monuments and sites
- development of automated methodologies
- InSAR processing of big time-series
- WebGIS applications

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Earth observation using Google Earth Engine (GEE) and automated methodologies (scientific programming) has emerged as a powerful tool for remote sensing, environmental monitoring, and geospatial analysis. This special session aims to bring together experts and researchers to discuss the latest advancements in the field. We invite abstract submissions on the following topics:

- showcase innovative applications of GEE and highlight the integration of machine learning techniques for image analysis, feature extraction, and classification in remote sensing applications.
- development of automated algorithms and workflows for processing large-scale Earth observation data, and possible contributes to environmental monitoring, climate change assessment, and mitigation efforts, among others.
- analyzing big time-series of InSAR data (among others) using GEE or other automated methodologies and discussing their applications.
- development of WebGIS platforms for geospatial visualization, data sharing, and interactive mapping.

This year's conference will feature a special session on:

THEORIES AND APPLICATIONS OF SATELLITE REMOTE SENSING AND GROUND-BASED NONDESTRUCTIVE TECHNOLOGIES IN CIVIL AND ENVIRONMENTAL ENGINEERING

Session Chairs: **Valerio Gagliardi,** Roma Tre Univ. (Italy); **Luigi D'Amato,** Italian Space Agency (ASI) (Italy)

Session Committee: **Maria Libera Battagliere,** Italian Space Agency (ASI), (Italy); **Luca Bianchini Ciampoli,** Roma Tre Univ. (Italy); **Francesco Soldovieri,** Institute for Electromagnetic Sensing of the Environment (IREA)-CNR (Italy); **Fabio Tosti,** Univ. of West London, (United Kingdom)

Satellite remote sensing is becoming popular for the assessment and the routine monitoring of civil engineering structures and infrastructures, such as buildings, railways, airports and highways and the surrounding environment. The tremendous progress made recently by this technology allows to control their conditions at the network level with a very high inspection frequency and resolution as well as to identify critical sections for an early-stage detection of decays. Parallel to this, ground-based non-destructive testing (NDT) methods have become established in structure, infrastructure, and environmental management systems due to their non-invasiveness, the rapidity of data collection and the provision of reliable information. Within this context, an integration between satellite remote sensing and ground-based NDT technologies (e.g. – but not limited to – GPR, GB-SAR, UAVs, Lidar, FWD and Profilometers) can stand as a step forward in the development of new theoretical, numerical and experimental approaches towards the provision of smarter management systems in civil and environmental engineering.

Submissions related to the above mentioned, describing work in the following and related research topics are invited:

- remote sensing theories and applications in civil and environmental engineering
- medium- and high-resolution SAR sensors in civil and environmental engineering
- advanced assessment, monitoring and interpretation methods for transport infrastructures (roadways, railways, airfields), bridges, tunnels, and buildings
- design and development of new surveying protocols, equipment, and prototypes
- advances in ground-based nondestructive testing (NDT) methods, numerical developments and applications (stand-alone use of existing and state-of-the-art NDTs)
- data fusion, integration and correlation of multi-source, multi-scale, and multi-temporal data outputs for civil and environmental engineering applications.

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SPIE. SENSORS+ IMAGING

ABSTRACT SUBMISSION GUIDELINES

Present your research at SPIE Sensors + Imaging

Below are abstract submission instructions, the accompanying submission agreement, conference presentation guidelines, and guidelines for publishing in the Proceedings of SPIE on the SPIE Digital Library. Submissions subject to chair approval.

Important dates

Abstract submissions due	7 May 2024
Registration opens	17 June 2024
Author notified and programme posts online	24 June 2024
Submission system opens for manuscripts and poster PDFs*	3 July 2024
Poster PDFs due for spie.org preview and publication	21 August 2024
Manuscripts due	28 August 2024
Advance upload deadline for oral presentation slides**	13 September 2024

**Contact author or speaker must register prior to uploading*
***After this date slides must be uploaded onsite at Speaker Check-in*

What you will need to submit

- Title
- Author(s) information
- Speaker biography (1000-character max including spaces)
- Abstract for technical review (200-300 words; text only)
- Summary of abstract for display in the program (50-150 words; text only)
- Keywords used in search for your paper (optional)
- Check the individual conference call for papers for additional requirements (i.e., special abstract requirements or instructions for award competitions)

Note: Only original material should be submitted. Commercial papers, papers with no new research/development content, and papers with proprietary restrictions will not be accepted for presentation.

How to submit your abstract

- Visit the conference page: **www.spie.org/rs108call**
- Choose one conference that most closely matches the topics of your abstract. You may submit more than one abstract, but submit each abstract only once
- Click the title of the conference to view the full description
- Sign in to the late submission system (now closed) or create an account if you do not already have one
- Follow the steps in the submission wizard until the submission process is completed

Submission agreement

All presenting authors, including keynote, invited, oral, and poster presenters, agree to the following conditions by submitting an abstract

- Register and pay the author registration fee
- Oral presenters: recording and publication of your onsite presentation (slides synched with voice) for publication in the Proceedings of SPIE in the SPIE Digital Library
- Poster presenters: submit a poster PDF by the advertised due dates for publication in the Proceedings of SPIE in the SPIE Digital Library; poster PDFs may also be published and viewable in the spie.org programme during and immediately after the event. Each poster must have a unique presenter; one person may not present more than one poster
- Email messaging for the conference series
- Submit a manuscript by the advertised due date for publication in the Proceedings of SPIE in the SPIE Digital Library
- Obtain funding for registration fees, travel, and accommodations
- Attend the meeting
- Present at the scheduled tim

Review and program placement

- To ensure a high-quality conference, all submissions will be assessed by the conference chair/editor for technical merit and suitability of content
- Conference chairs/editors reserve the right to reject for presentation any paper that does not meet content or presentation expectations
- Final placement in an oral or poster session is subject to chair discretion

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- More publication information available on the SPIE Digital Library.

Contact information

For questions about your presentation, submitting an abstract, or the meeting, contact your Conference Program Coordinator.

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