



## Target and Background Signatures: Traditional Methods and Artificial Intelligence X (SD101)

*Conference Chairs:* **Karin Stein**, Fraunhofer-Institut für Optronik, Systemtechnik und Bildauswertung (Germany); **Ric Schleijsen**, TNO Defence, Security and Safety (Netherlands)

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Bildauswertung (Germany); **Gorm K. Selj**, Norwegian Defence Research Establishment (Norway); **Henny E. T. Veerman**, TNO (Netherlands); **Peter Wellig**, Armasuisse (Switzerland)

This conference deals with algorithmic and experimental approaches for distinguishing the weak signals of targets from a cluttered background, for sensors covering the spectral region from the visible up to the thermal infrared. Making this distinction requires either detailed characterization of the target properties and characterization of the backgrounds /and could use Artificial Intelligence techniques to distinguish based on training data. Knowledge of target and background signatures is essential for various applications such as systems engineering and evaluation (e.g. electro-optical sensors or camouflage design), operational planning and development of ATR algorithms. The conference also covers methods for signature reduction and signature management as well as techniques for assessing the influence of sig-

nature management at different levels such as platform signature, tactical application and operational capabilities. These signature reduction design and assessment techniques may include Artificial Intelligence.

Contributions are invited on the following topics and those related to them:

- signature modeling and validation
- artificial intelligence in signature reduction
- background properties
- aided and automatic target typing, classification, and discrimination
- low signal-to-clutter ratio processing
- tracking in complex backgrounds
- signature management and signature monitoring
- methods and materials for signature reduction
- advances in algorithms for sensor signal and data processing
- simulation and performance evaluation including human observer performance
- sensor data fusion, multiple source integration
- artificial intelligence techniques for target - background discrimination
- signature management against artificial intelligence
- processing multi-/hyperspectral data
- multisensor signature prediction model
- camouflage effectiveness
- signature features in relation to sensor capabilities and sensor processing.

## 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	3 April 2024
Registration opens	3 June 2024
Author notified and programme posts online	10 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/sd101call](http://www.spie.org/sd101call)
- 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 time

### 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

### Publication of Proceedings in the SPIE Digital Library

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- Only manuscripts, presentations, and posters presented at the conference and received according to publication guidelines and due dates will be published in the Proceedings of SPIE in the SPIE Digital Library
- Manuscripts, presentations, and posters will be officially published after the event in the SPIE Digital Library
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- More publication information available on the [SPIE Digital Library](http://SPIEDigitalLibrary).

### Contact information

For questions about your presentation, submitting an abstract, or the meeting, contact your [Conference Program Coordinator](#).

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