CALL FOR PAPERS

SPIE Future Sensing Technologies (FST101)

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Sensors are integral components of modern infrastructure, scientific research, and transportation systems. Bridges, buildings, vehicles, and other devices now depend on complex sensing and imaging systems to relay information and interact with the world. Autonomous vehicles, for example, rely on a multi-sensor suite to safely navigate a vehicle through urban and rural areas in a variety of meteorological conditions. Sensor systems are also critical for environmental monitoring and to help protect human health and safety. These expanding fields require ongoing collaboration between researchers, government agencies, and industry companies as these sensors and their relevant data products evolve.

In order to keep up with the latest techniques and application areas, Future Sensing Technologies will cover topics that are especially significant to the industry today. Leading experts will deliver invited presentations on the latest advancements and industry trends. If you have something to contribute, we encourage you to participate. Papers are solicited on advanced sensing, related technologies, and application areas for industry and research.

Submit your latest work and plan to join your colleagues for this exciting event. Papers are solicited on advanced sensing, related technologies, and application areas for industry and research and topics related to the current COVID-19 pandemic and other health and safety technologies are encouraged.

The conference focus is on sensors and sensing applications that are based on optical, photonic, or RF technologies. Potential topics are organized into 4 themes. Topics include, but are not limited to:

NEXT-GENERATION TECHNOLOGIES
- AR/VR
- Photonics
- Optical communications
- Quantum sensing
- Space-based missions

IMAGING AND SENSING
- Cameras and imaging systems
- Multispectral and Hyperspectral imaging
- LIDAR technology and applications
- Polarization sensing and imaging
- EO/IR/SWIR sensing and imaging
- RADAR systems
- Computational methods for sensing

APPLICATION AREAS OF OPTICAL AND PHOTONIC SENSING
- UAV applications
- Environmental remote and proximal sensing
- Food/water/waste safety and inspection
- Sensing for safety and security
- Autonomous vehicle sensing
- Sensor-based sorting & quality control
- CubeSats

ALGORITHMS
- Artificial intelligence and Machine learning
- Signal and image processing
- Data and sensor fusion
- Sensor information processing

Submit abstracts by 30 November 2022

www.spie.org/fstcall
The transformation of new ideas and concepts into sensor components and products represents a major scientific and engineering challenge. To meet this challenge, innovative development methodologies and novel evaluation techniques must often be used to enable the realization of new and disruptive sensing capabilities and their associated performance benefits. The continued and rapid emergence of new ideas, coupled with the desire for reducing the time to market, further intensifies the need for technology pull-through and increases the demands on the associated product development life cycle.

Throughout this session, we will be considering all scientific and engineering aspects associated with the progression of sensor ideas and concepts to higher technology readiness levels. The scope of the session therefore extends from early laboratory demonstrators where the technology is evaluated and optimized, through to the development of prototypes and on to the final embodiment in a sensor system product. The session will also consider those applications where new technology is incorporated into existing sensor products as this generates its own unique challenges in areas such as integration and testing.

Specific areas of interest for the session include:
- Proof of principle software and hardware demonstrators
- Early prototype systems and their evaluation
- Sensor system models and simulators
- Proposed demonstrator and prototype programs for new and disruptive technology
- Sensor component and product development activities and the demonstration of new capabilities and benefits
- Field trials for development, test, and acceptance
- Development processes including software and system engineering methods tailored to future sensor products
- Identification and management of risk and emergent requirements
- Novel product fabrication and assembly methods
- Incorporation of end-user feedback and human factors studies into the design
- Performance evaluation and the validation of models and simulators
- The incorporation or retrofit of new technology into existing sensor systems
- Integration challenges of sensors within complex systems

Papers are sought from parties who can report on the challenges and achievements in this demanding arena of technology pull-through and product development. Authors are encouraged to discuss the approach taken together with performance achieved, as well as successes, failures and lessons learnt along the way.

If you would like your submission to be considered for the Moving Technology to Market session then include “Market” as a keyword when submitting your abstract.

Exhibitors at OPIE are also invited to submit relevant papers on their sensor products and associated technologies.
Present your research

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

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<tr>
<th>What you will need to submit</th>
<th>Review and program placement</th>
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<tr>
<td><strong>Abstracts due</strong> 30 November 2022</td>
<td><strong>To ensure a high-quality conference, all submissions will be assessed by the conference chair/editor for technical merit and suitability of content</strong></td>
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<tr>
<td><strong>Authors notified and program posts online</strong> 18 January 2023</td>
<td><strong>Conference chairs/editors reserve the right to reject for presentation any paper that does not meet content or presentation expectations</strong></td>
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<td><strong>Registration opens</strong> January 2023</td>
<td><strong>Final placement in an oral or poster session is subject to chair discretion; poster session is subject to chairs’ discretion</strong></td>
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<td><strong>Submission system opens for manuscripts and poster PDFs</strong> 13 February 2023</td>
<td><strong>Publication of Proceedings in the SPIE Digital Library</strong></td>
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<td><strong>Poster PDFs due for spie.org preview and publication</strong> 22 March 2023</td>
<td>Increase your professional visibility and publish in the world’s largest collection of optics and photonics research. Your peers access approximately 18 million papers, presentations, and posters from the SPIE Digital Library each year.</td>
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<td><strong>Manuscripts due</strong> 29 March 2023</td>
<td>- 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 on the SPIE Digital Library</td>
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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/fst
- 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 and submit by clicking the “Submit An Abstract” button on that page
- Sign in to your SPIE account, 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 on-site presentation (slides synced with voice) for publication in the Proceedings of SPIE in the SPIE Digital Library
- Poster presenters: submit a poster PDF and optional preview video, 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 program during and immediately after the event
- Submit a 2-page minimum 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
- Ensure that all clearances, including government and company clearance, have been obtained to present and publish. If you are a DoD contractor in the USA, allow at least 60 days for clearance
- Attend the meeting
- Present at the scheduled time

Review of Proceedings in the SPIE Digital Library

Your work will live far beyond the conference room—all proceedings from this meeting will be published in the SPIE Digital Library. Promote yourself, your ideas, and your organization to millions of key researchers from around the world through this web-based repository of the latest technical information.

Questions?

Contact the program coordinator listed in your spie.org account.

For questions about submitting an abstract for participation, your presentation, or the event, contact the SPIE program coordinator listed in your spie.org account.

For questions about publication of your manuscript, video, or poster in the Proceedings of SPIE on the SPIE Digital Library, contact your SPIE proceedings coordinator.

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