

**Special issue on
“Smart measurement in machine vision for challenging applications”**

in IEEE Instrumentation & Measurement Magazine, published in November 2023

Smart measurements are widely deployed in many applications due to the technology advancement. Machine Vision (MV) is the technology and method used to provide imaging-based automatic inspection and analysis for various industrial applications such as automatic inspection, robot guidance and so on. In all these applications, it is necessary to connect sensors for the measurements. Machine vision attempts to integrate existing technologies in new ways and apply them to solve real world problems. Measurement is the prevalent term for different functions and is the base for the deployment of industrial automation, security and vehicle guidance.

The overall machine vision process includes planning the details of the requirements and project, and then creating a solution. During run-time, the process starts with imaging, followed by automated analysis of the image and extraction of the required information. This type of systems are emerging in all the areas of our daily lives, they can be found in medical area, industry, agriculture, smart cities, smart health monitoring, etc. All of them extremely depends on the adequate coordinate's measurement, properly selected data processing and data fusion algorithms, evaluation procedures for performance analysis of measurement within machine vision systems, measurement of displacements, surface profiles, deformations processes and algorithms that includes traditional and artificial intelligence, etc.

Contributions invited on addressing the novel achievements in all fields of measurement and instrumentation science and technology, and advances in the area of machine vision concerning to production, application of smart materials, measurement and estimation techniques, etc. The following potential topics include, but are not limited to:

- 2D/3D coordinate measurements
- 3D reconstruction and image augmentation
- Measurement accuracy in sensors for vehicle and robot navigation
- Measurement data processing and fusion algorithms
- Evaluation procedures for performance analysis of measurement systems
- Sensors and Actuators for future generation
- Tailored security solutions for specific IIoT applications
- Intrusion detection and prevention system
- Data security, privacy and trustworthiness
- Security and trust management for fog and edge computing
- Machine learning, deep learning and blockchain based security solutions
- Threat and vulnerability in platforms and protocols
- Adaptive security management, security metrics and risks

Papers should present to the wide audience a general overview of one scientific subject of your interest fitting the Special Issue Topic and really framed in the Instrumentation and Measurement field. Contributions dealing with Open Problems in IM are very welcome, also presenting challenging and ambitious solutions, which could be developed by current and advanced technology.

While drafting your paper to IMM, you are strongly invited to take care of the following:

- The paper is properly framed in the field of Instrumentation and Measurement. This could be achieved by properly structuring the Review of the State of the Art and motivations of your work.
- In line with mission of the IEEE I&M Magazine, the paper aims to provide an overview of the topic addressed to the general I&M audience.
- The paper format is compliant with the IMM's author guidelines:
<https://iee-ims.org/publication/ieee-imm/new-submissions>

In general, each paper should contain 3500-5000 words, and present 4-6 figures.

When your paper is ready, please submit it completely through

<https://www.editorialmanager.com/IMM/default.aspx>

We expect to receive your paper by February 20th, 2023 to begin the review and production process. With your submission, please include a cover letter where you specify that this paper has been submitted for this special issue.

Schedule:

Full-length paper submission	: February 20 th , 2023
Revised manuscript due	: April 30 th , 2023
Final acceptance notification	: May 30 th , 2023
Publication date	: November, 2023

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