Additive manufacturing (AM) is a fast-growing sector with the potential to evoke a manufacturing revolution due to its limited design freedom and ability to produce personalised parts locally and with efficient material use. The increasing adoption of additive manufacturing (AM) within the manufacturing industry is pushing companies to rethink how components and integrated component assemblies can be manufactured and not least how to ensure that manufacturing quality is met. In recent years, machine learning (ML) has gained increasing attention in AM due to its unprecedented performance in data tasks such as classification, regression and clustering, defect measurement and control, materials property measurement and machine testing & validation. ML can be leveraged to output new high-performance metamaterials and optimized topological designs. Moreover, there has been an increasing concern about data security in AM as data breaches could occur with the aid of ML techniques. ML technique that allows a machine or system to learn from data automatically and make decisions or predictions without being explicitly programmed.

Authors are invited to submit research contributions on new and enhanced measurement and characterisation methods for AM developed over the last few years. In addition, researchers can contribute the topics related to despite dramatic improvements in AM design methods and supporting technologies. The following potential topics include, but are not limited to:

- Defect measurement and control
- Materials property measurement
- Process-function correlation studies
- Non-contact measuring systems for AM metrology
- X-ray computed tomography
- 3D printing, rapid prototyping, and direct digital manufacturing
- Benchmarking and calibration artefacts
- Dimensional and geometrical product specifications and verification
- Metrological traceability and uncertainty
- Economics of industrial AM measurements

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.

Review papers 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 providing a deep review of the State of the Art on the subject and clear motivations of your work.

- Papers might also have technical content, but primarily they should present to the wide audience a general overview of the scientific subject addressed. Eventually, a case of study is welcome.
- In line with mission of the IEEE I&M Magazine, the paper must be written for the general I&M audience.
- The paper format is compliant with the IMM's author guidelines:
  https://ieee-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 December 2022 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   : December 2022
Revised manuscript due   : February 2023
Final acceptance notification   : March 2023
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