



28th INTERNATIONAL CONFERENCE
ON EMERGING TECHNOLOGIES
AND FACTORY AUTOMATION

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Call for Papers

Medical image and data analysis with deep learning algorithms (MIDA-DL)

Organized and Co-Chaired by

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Workshop: September 12, 2023

Workshop Program Committee

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❖ **FOCUS.** Although medical imaging technology is mature and has many advantages, the images obtained have in general low signal to noise ratio. One reason is given by the fact that ultrasound scanners use signals that have short duration in time and therefore a broad-band frequency domain and this fact imply multiple noise sources that can affect the signal. Another one is given by the fact that sound waves are highly distorted when traveling through the tissues and consequently the quality of the image is affected by many types of artefacts. The artefacts play an important role in distorting the shape and texture of the structures and limit the detection of the obscure details in the images. In this context, image processing and analysis can be considered as a post-imaging or pre-analysis step which can play a particularly important role in diagnosis, planning, monitoring and evaluation of the treatment.

❖ TOPICS

- ❖ medical images
- ❖ feature extraction
- ❖ segmentation
- ❖ classification
- ❖ registration
- ❖ computer aided detection
- ❖ landmark detection
- ❖ image or view recognition
- ❖ multi-task learning
- ❖ transfer learning
- ❖ generative learning
- ❖ self-supervised learning
- ❖ weakly supervised learning
- ❖ unsupervised learning
- ❖ privacy preserving learning
- ❖ explainability and interpretability
- ❖ robustness and out-of-distribution detection
- ❖ uncertainty quantification

❖ **AIM.** In recent years, deep learning, as part of artificial intelligent, is increasingly used in medical imaging where it has come to play a key role in assisted diagnosis, planning, monitoring, and evaluation of the treatment. The types of medical images that can feed a deep learning algorithm are focused on mammography, dermoscopy, ultrasounds, tactile imaging, computerized tomography, magnetic resonance imaging, endoscopy or X-rays. Medical images are complex, and due to their specific acquisition process some details cannot be very clear and easy to interpret. Consequently, the medical and engineering specialists have come to work closely to develop new methods for providing a diagnosis as quickly and accurately as possible.

❖ **WORKSHOP FORMAT.** MIDA-DL will be a half day workshop. Prospective authors are invited to electronically submit full regular papers (limited to 8 pages) of their work. English is the working language of the conference. Accepted papers must be presented at the workshop in order to be included in the ETFA conference proceedings available at IEEE Xplore.

❖ AUTHOR'S SCHEDULE (2023)

❖ Regular and special sessions papers

- Submission deadline June 16
- Acceptance notification July 7
- Deadline for final manuscripts July 21