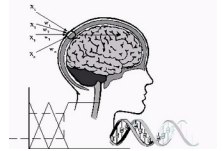# International

Innovation in Knowledge Based and Intelligent Engineering Systems

INVITED SESSION SUMMARY

Title of Session:

Machine Learning for Vision Systems

Name, Title and Affiliation of Chair:

Chair: Dr. Laura Falaschetti,
Department of Information Engineering, Università Politecnica delle Marche, Ancona, Italy

Co-Chair: Prof. Claudio Turchetti,
Department of Information Engineering, Università Politecnica delle Marche, Ancona, Italy

Details of Session (including aim and scope):

In recent years, machine and deep learning techniques applied to vision systems are rapidly gaining increasing interest compared to traditional image processing methods.

Computer vision based on machine learning and deep learning techniques has become of paramount importance in computer science research and it has proven to be extremely useful to solve a large variety of tasks (image classification, semantic segmentation, object detection) in several real-world applications and consequentely to develop intelligent vision systems (in mobile, cloud, fog, and embedded systems) for such applications.

A number of fields benefit from this approach, to name a few: in autonomous driving, both smart vehicles and smart robots, to help deep understanding of scene, objects and human; in industy to detect anomaly detection; in agriculture for plant diseases recognition; in early warning systems for early identification to predict natual disasters or other alert situations; in medical imaging for automatic computer-aided-diagnosis systems for early detection/classification of diseases and healthcare applications.

This session aims to present original research articles that cover recent advances in the theory and/or application of machine learning for vision systems.

The topics of interests include but are not limited to:

• Machine learning and deep learning for image processing (image classification, object detection and semantic segmentation);

• Machine learning image-based applications on embedded systems;

• Machine learning for edge computation on image sensors;

• Deep learning model compression and acceleration applied to images;

• Machine learning-based vision systems for smart vehicles;

• Machine learning-based vision systems for smart robots;

• Visual SLAM Applications;

- Machine learning-based vision systems for industry;

- Machine learning-based vision systems for smart agriculture;

- Machine learning-based vision systems for early warning systems;

- Deep neural networks for biomedical image processing;

- Machine learning methods for computer-aided diagnosis by image processing;

- Machine learning image-based healthcare applications.

Publication:

Full papers will be reviewed by the IPC and if accepted and presented, they will be published in Elsevier's Procedia Computer Science open access journal, available in **ScienceDirect** and submitted to be indexed/abstracted in **CPCI (ISI conferences and part of Web of Science)**, **Engineering Index**, and **Scopus**.

Important dates:

- Submission of papers: Extended   **6 May 2023.**
- Notification of acceptance: Extended **21 May 2023.**
- Final paper publication files to be received by: **29 May 2023**.
- Conference: Athens, Greece, 6 – 8 September 2023

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

Website URL of Call for Papers (if any):

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