IJCNN 2021 Special Session on Machine Learning and Deep Learning Methods applied to Vision and Robotics (MLDLMVR)

Aims:

Over the last decades there has been an increasing interest in using machine learning and in the last few years, deep learning methods, combined with other vision techniques to create autonomous systems that solve vision problems in different fields. This special session is designed to serve researchers and developers to publish original, innovative and state-of-the art algorithms and architectures for real time applications in the areas of computer vision, image processing, biometrics, virtual and augmented reality, neural networks, intelligent interfaces and biomimetic object-vision recognition.

This special session provides a platform for academics, developers, and industry-related researchers belonging to the vast communities of *Neural Networks*, *Computational Intelligence*, *Machine Learning*, *Deep Learning*, *Biometrics*, *Vision systems*, and *Robotics *, to discuss, share experience and explore traditional and new areas of the computer vision, machine and deep learning combined to solve a range of problems. The objective of the workshop is to integrate the growing international community of researchers working on the application of Machine Learning and Deep Learning Methods in Vision and Robotics to a fruitful discussion on the evolution and the benefits of this technology to the society.

The methods and tools applied to vision and robotics include, but are not limited to, the following:

- Computational Intelligence methods
- Machine Learning methods
- Self-adaptation, self-organisation and self-supervised learning
- Robust computer vision algorithms (operation under variable conditions, object tracking, behaviour analysis and learning, scene segmentation,,,,)
- Extraction of Biometric Features (fingerprint, iris, face, voice, palm, gait)
- Registration Methods
- Convolutional Neural Networks CNN
- Recurrent Neural Networks RNN
- Deep Reinforcement Learning DRL
- Generative Adversial Networks
- Predictive Learning
- Active-Incremental-Online Learning
- Hardware implementation and algorithms acceleration (GPUs, FPGA,s,…)

The fields of application can be identified, but are not limited to, the following:

- Video and Image Processing
- Video tracking
- 3D Scene reconstruction
- 6D Object detection
- Objects Grasping/Manipulation
- 3D Tracking in Virtual Reality Environments
- 3D Volume visualization
- Intelligent Interfaces (User-friendly Man Machine Interface)
- Multi-camera and RGB-D camera systems
- Multi-modal Human Pose Recovery and Behavior Analysis
- Human body reconstruction
- Gesture and posture analysis and recognition
- Biometric Identification and Recognition
- Extraction of Biometric Features (fingerprint, iris, face, voice, palm, gait)
- Surveillance systems
- Autonomous and Social Robots
- Robotic vision
- Synthetic data generation
- Sim2Real
- Industry 4.0
- IoT and Cyber-physical Systems

Important dates:
Paper Submission Deadline
January 15, 2021

Paper acceptance notification date
March 15, 2021

Conference
July 18-22, 2021

Submission Guidelines:
Please follow the regular submission guidelines of IJCNN 2021. Please notify the chairs of your submission by sending an email to: jgarcia@dtic.ua.es.

Journal special Issue

A Journal special Issue with extended versions of best special session papers is being managed.
Previous special session best papers were published in Neural Processing Letters 2014 and Neural Computing and Applications 2015, Expert Systems 2017, Computational Intelligence and Neuroscience 2018.
Tentative journal special issue is being managed with Journal Sensors: https://www.mdpi.com/journal/sensors/special_issues/Deep_Learning_Image_Recognition_Systems but other special issues are being discussed.

Chairs:

José García-Rodríguez -University of Alicante (Spain)
Alexandra Psarrou – University of Westminster (UK)
Isabelle Guyon - , U. Paris-Saclay, France and ChaLearn, USA
Antonis Argyros - Institute of Computer Science, FORTH (Greece)
Andrew Lewis – Griffith University (Australia)
Sergio Escalera - University of Barcelone (Spain)
Juxi Leitner - Australian Centre for Robotic Vision (ACRV) QUT (Australia)
Enrique Dominguez - Univesity of Malaga (Spain)

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Asim Roy (Arizona State University, USA)
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Main Conference webpage: https://www.ijcnn.org/
Special session webpage: http://www.dtic.ua.es/~jgarcia/IJCNN2021/