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Preface to the Proceedings of the First International Workshop on Self-Learning in Intelligent Environments

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Self-learning systems are artificial agents able to acquire and renew knowledge over the time by themselves, without any hard coding. These are adaptive systems whose functions improve by a learning process based -typically- on the method of trial and error. A self-learning system interacts with its users or surrounding environment initially by attempts and observes the changes produced by its actions.

This workshop focuses on the design, implementation and exploitation of self-learning features -either within an Intelligent Environment [2] as a whole, or within some of its components- by means of leading technologies ([8,6,7,5]) and even in critical environments (e.g. healthcare [3,1,4]). The workshop will represent an opportunity for both the academia and industry to debate the state-of-the-art, challenges and open issues.

This first edition of the workshop has accepted for publication and presentation seven papers.

Aslan et al. have proposed an algorithm for learning to move the desired object by humanoid robots. In this algorithm, the semantic segmentation algorithm and Deep Reinforcement Learning (DRL) algorithms are combined. The semantic segmentation algorithm is used to detect and recognize the object be moved. DRL algorithms are used at the walking and grasping steps.

Donnici et al. have presented an intelligent system for supporting patients during their home medical treatment. The system can assist impaired patients in taking medicines in accordance with their treatment plans. The demonstration of the system via mobile app shows promising results and can improve the quality of healthcare at home.

Hayat et al. have proposed a framework that self-learns and automatically classifies any given news headline into its corresponding news category using artificial intelligence methods i.e. text mining and machine learning algorithms.

Ribino and Bonomolo have reported an approach based on reinforcement learning to support the rearrangement of indoor spaces by maximizing the indoor environmental quality index in terms of thermal, acoustic and visual comfort in the new furniture layout scheme.

Shah and Coronato have exploited an IRL method named Max-Margin Algorithm (MMA) to learn the reward function for a robotic navigation problem. The learned reward function reveals the demonstrated policy (expert policy) better than all other poli-

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cies. Results show that this method has better convergence and learned reward functions through the adopted method represents expert behavior more efficiently.

Shah and De Pietro have surveyed IRL algorithms. The purpose of their paper is to provide an overview and theoretical background of IRL in the field of Machine Learning and Artificial Intelligence.

Aamir et al. have introduced a novel supervised machine learning based approach for breast prediction that embodies Random Forest, Gradient Boosting, Support Vector Machine, Artificial Neural Network and Multilayer Perception methods.

We deeply appreciate the Intelligent Environments 2021 conference organizers for their help on hosting this event.

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