Marie Skłodowska Curie Individual Fellowship 2020

Expression of Interest for hosting Marie Curie Fellows

1. Supervisor (name and e-mail address)

Ivan Serina, ivan.serina@unibs.it

2. Department (name and address)

Department of Information Engineering
Via Branze, 38 25123 Brescia - Italy

3. Panel (choose one)

□ Chemistry (CHEM)
□ Social Sciences and Humanities (SOC)
□ Economic Sciences (ECO)
X Information Science and Engineering (ENG)
□ Environment and Geosciences (ENV)
□ Life Sciences (LIF)
□ Mathematics (MAT)
□ Physics (PHY)

4. Description of your research activities (max 10 lines)*

The research activity has had as its main objective the development and the experimental analysis of efficient techniques of "domain independent" planning and the application of Machine Learning ad Deep Learning techniques for Natural Language Processing, AI Planning, Predictive Maintenance also in collaboration with Industries.
The research activity has been focused on generic algorithms that can be applied to a variety of situations in which the evolution of the external world makes it necessary to revise a plan which has been previously formulated or the generation of a new plan. In such a context I have developed the system LPG system together with the group of Artificial Intelligence. In particular LPG is at present one of the best domain independent planners that exist in terms of execution times, of the quality of the plans produced and expressivity of manageable problems.

5. Key-words

AI planning, Machine Learning, Deep Leaning, Case Based Planning, Heuristic Search.

6. Short CV of the supervisor (max 5 lines)

Ivan Serina is associate professor in Information Processing Systems at the Dept. of Information Engineering of the University of Brescia, Italy. He participated in the 3rd International Planning Competition (2002) with LPGi that was awarded for "Distinguished performance of the first order"; he participated in the 4th International Planning Competition (2004) with LPG-td that was awarded for its performance in temporal and numeric domains.

7. List of 5 main publications of the supervisor

1. Alfonso Gerevini, Alessandro Saetti, Ivan Serina: **An approach to efficient planning with numerical fluents and multi-criteria plan quality.** Artif. Intell. 172(8-9): 899-944 (2008)
2. Ivan Serina: **Kernel functions for case-based planning.** Artif. Intell. 174(16-17): 1369-1406 (2010)
3. Tuan Anh Nguyen, Minh Binh Do, Alfonso Gerevini, Ivan Serina, Biplav Srivastava, Subbarao Kambhampati: **Generating diverse plans to handle unknown and partially known user preferences.** Artif. Intell. 190: 1-31 (2012)
4. Daniel Borrajo, Anna Roubíčková, Ivan Serina; **Progress in Case-Based Planning.** ACM Comput. Surv. 47(2): 35:1-35:39 (2014)
5. Alfonso Emilio Gerevini, Alberto Lavelli, Alessandro Maffi, Roberto Maroldi, Anne-Lyse Minard, Ivan Serina, Guido Squassina: **Automatic classification of radiological reports for clinical care.** Artif. Intell. Medicine 91: 72-81 (2018)

*Please consider that the preparation of a Marie Curie proposal requires some time. Fellow and supervisor have to agree on a project and training opportunities for the fellow.