UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

COMPUTATIONAL INTELLIGENCE LABORATORY

Seminar Announcement

DIPARTIMENTO DI INFORMATICA

The Seminars on "Information Technology Outlook" – PhD Program in Computer Science and Mathematics

Patryk Żywicay

Assistant Professor,
Adam Mickiewicz University,
Poznań (Poland)

Wednesday July 12, 2023
15:30

Aula Goedel
Dept. Computer Science

Implementation of an artificially empathetic robot swarm

Emotions and empathy are an important part of communication and cooperation between humans. The attempt to transfer the concept of human empathy to artificial systems is called artificial empathy. It makes it possible to improve the quality of computer systems, extending them with a cognitive aspect, in the form of learning and adaptation mechanisms. The talk presents the application of artificial empathy in a robot swarm, for multiple robots cooperating to achieve a shared goal. The proposed artificial empathy model is based on fuzzy state vectors describing the agents' knowledge and environment. The states are compared based on similarity measures to apply empathetic reasoning. Simulation based results as well as preliminary implementation in physical swarm will be presented.

Patryk Żywica conducts scientific research in the areas of computational intelligence and soft computing, which are an integral part of modern artificial intelligence (AI). He is the author of over 25 publications in renowned journals and post-conference materials that were cited 222 times. The main scientific problem he undertakes is analysis of processing methods of imprecise and uncertain information. The acquired knowledge is used in practice to solve real business and industrial problems. Patryk Żywica specializes in decision support systems, incomplete data analysis and the use of deep machine learning models. He has many years of experience in research and development projects. Since 2016, he has been employed as an assistant professor at the Department of Artificial Intelligence at the Adam Mickiewicz University in Poznań. The teaching focuses on software engineering, artificial intelligence, and team engineering projects.