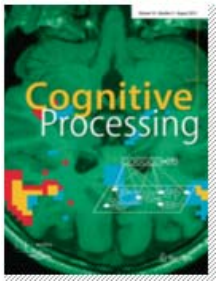

Cognitive Processing Special Issue on

Cognitive Robotics

Springer

Antonio Bandera
University of Malaga
Spain
ajbandera@uma.es

Jorge Dias
Universidade do Coimbra (Portugal)
& Khalifa University (Abu Dhabi)
jorge@deec.uc.pt

Markus Vincze
Vienna University of Technology
Austria
Vincze@acin.tuwien.ac.at

Luis J. Manso
University of Extremadura
Spain
lmanso@unex.es

Cognitive robotics integrates studies on robotics, cognitive psychology and brain science in the frame of cognitive science. The long term aim is to translate models of human cognitive abilitiesfor perceiving or reasoning to the domain of socially interactive robots. Theserobots should share the environment with humans, emanating and understanding a continuous and dense stream of social signals. This challenging scenario demands new strategies for robot control, which should intimately link the robot body with its dynamic surroundings. This can only be achieved if perception and action are closely tied, but this is probably not sufficient. The robot must be able to predict the result of an observed or executed action, as this could be the only way to quickly anticipate next actions. The aim is to imitate the human capabilities for actively perceiving others' actions, predicting their intentions at different levels of abstraction and quickly learning from the observation of others' behaviours.The way for bridging the gap between the theoretical definition of the whole framework and the development of real functional approaches is provided by the current applications of autonomous robots for dealing with specific tasks such as museum guiding or elderly assisting. Within these scenarios, smart robot intelligence typically emanates from the use of cognitive computing models that pursuit to simulate human thought procedures. Briefly, cognition is the ability that allows us to internally deal with the information about ourselves and the external world and, hence, it is subject to the co-existence of solutions coming from disciplines such as artificial intelligence, computer science and knowledge engineering, but also from linguistics or mathematics.

This special issue focuses on the intersection of cognitive science and robotics, covering the basic research but also its specific applications. The recent advances on cognitive modelling, natural language processing, machine learning or pattern recognition and its embodiment within practical architectures endowed on robots that are able to work on real scenarios are principal topics to be addressed in this special issue.Topics of interest include (but are not limited to):

- Cognitive modelling and development
- Cognitive architectures for interactive robots
- Visual learning and active perception
- Knowledge representation for inner state modelling
- Natural language processing on human-robot interaction scenarios
- Machine learning for cognitive robotics

Cognitive Processing -- International Quarterly of Cognitive Science is a peer-reviewed international journal that publishes innovative contributions in the multidisciplinary field of cognitive science. We particularly encourage papers reviewing and discussing the recent scientific literature or advances on the previously cited topics. Please, consider that these papers must be written to be comprehensible to the interdisciplinary audience of this journal.

Submission of manuscripts

We invite authors to submit a tentative title and abstract (400-500 words) to ajbandera@uma.es. Authors of selected abstracts will be requested to send full manuscripts according to the submission guidelines (http://www.springer.com/biomed/neuroscience/journal/10339).Submitted papers must not have been previously published or currently submitted for journal publication elsewhere.

Key dates

Deadline for abstracts – September 1, 2016
Decisions made – September 15, 2016
Full manuscripts due – November1, 2016
First reviews due – February 15, 2017
Revised manuscripts due – March 15, 2017
Final decision – April 15, 2017