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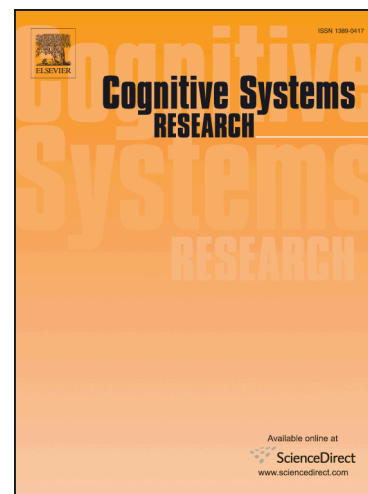
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Metrics and Benchmarks in Human-Robot Interaction: Recent Advances in Cognitive Robotics

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Abstract

Robots are currently having an important growing role in human social life, which requires them to be able to behave appropriately to the context of interaction so as to create a successful long-term human-robot relationship. A major challenge in developing intelligent systems, which could enhance the interactive abilities of robots, is defining clear metrics and benchmarks for the different aspects of human-robot interaction, like human and robot skills and performances, which could facilitate comparing between systems and avoid application-biased evaluations based on particular measures. The point of evaluating robotic systems through metrics and benchmarks, in addition to some recent frameworks and technologies that could endow robots with advanced cognitive and communicative abilities, are discussed in this technical report that covers the outcome of a recent workshop on current advances in cognitive robotics¹. Additionally, a summary of an interactive discussion session between the workshop participants and the invited speakers about different issues related to cognitive robotics research is reported.

Keywords:

Metrics, benchmarks, system evaluation, intelligent robot technologies

1. Introduction and Related Work

The fast emerging interdisciplinary research area of cognitive robotics focuses on developing intelligent robots that can perceive the environment, act, and learn from expe-

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¹Workshop on: *Towards Intelligent Social Robots - Current Advances in Cognitive Robotics*, in conjunction with the 15th IEEE-RAS Humanoids Conference - Seoul - South Korea - 2015 (<https://intelligent-robots-ws.ensta-paristech.fr/>).

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