IEEE ROBOTICS & AUTOMATION MAGAZINE

CALL FOR PAPERS SPECIAL ISSUE ON EDUCATIONAL ROBOTICS

The scope of this special issue is to advance knowledge in the field of robotics applied to formal and informal education. The idea of robots as educational tools goes back to the late 60s, when Seymour Papert formulated the theory on learning called "constructionism", which points out the relevant role played by artefacts in the learning process. Educational robotics broadly refers to the use of robots for educational purposes. There are several ways in which robotics and robots have been employed in educational activities: from object of study to medium that facilitates the transfer of knowledge and even companion, in which the robot performs the role of tutor or peer during the learning process.

Although the ICT revolution (computers, Internet and other digital/online devices) is still struggling to find its way into schools in many countries, the number of educators, researchers and students interested in educational robotics is growing as well as the number of platforms available in the market.

However, there are still several grey areas surrounding the field of educational robotics, which make the role of robots in learning and teaching unclear. Among the main open issues are the lack of empirical evidence on the educational effectiveness of robotics, which is related to the lack of evaluation criteria and the difficulties in incorporating robotics activities in school curricula.

This special issue seeks to address some of these questions by soliciting original and unpublished articles. Contributions can be theoretical or experimental studies. Descriptive paper telling experiences with robots in class or in informal educational contexts are also accepted provided they clearly address one of the topics of interest listed below. The special issue is open to any kind of robotic platform (self-constructed or commercial, open or closed), it is interested in the perspectives of learners (pupils, students, young people) as well as educators (teachers, tutors or parents) and it is not limited to any age groups (from nursery to university) or educational context (formal and informal).

The topics of interest include but are not limited to:
Benefits on cognitive functions or on other educational objectives - Evaluation methodologies for formal or informal settings - Innovative robotics curricula or integration of robotics in existing schools curricula - Robots can be also used to assist professional training for workers, e.g. for learning new jobs related in high-tech firms - Teaching/learning strategies and/or methodologies - Experimental evaluation of usability and acceptability of robotic platforms (hardware and/or software) - Effects on inclusion, with respect to learning disabilities, behavioural problems, difficult students, cultural integration) - Accessibility (costs, level of difficulties, safety certification, etc.) - Open source material: hardware and software - Topics taught - Experimental laboratory activities in educational robotics - Design criteria for educational robots - Innovative platforms, kit, etc. - Standards and bench marking - Edutainment: competitions and other activities - The role of ethics in educational activities with robots - Professional training of adults - Future trends

Timeline:
Call for papers: 15 April 2015
Deadline for paper submission: 15 July 2015
First review: 30 September 2015
Final review: 20 January 2016
Publication: June 2016

Guest Editors:
Pericle Salvini, The BioRobotics Institute, Scuola Superiore Sant'Anna, Italy

Ayorkor Korsah, Computer Science Department, Ashesi University College, Ghana

Illah Nourbakhsh, The Robotics Institute, Carnegie Mellon University, Pennsylvania