Editorial

GUEST EDITORIAL FOR THE TOPICAL ISSUE: ROBOTICS IN EDUCATION

With great pleasure I would like to present this issue devoted to Robotics in Education. This topic brings together experts from academia, schools, and industry to present new trends, practical experience, and the latest innovations and advances in educational activities. Robotics is widely used on all levels of education from preschool up to the university level. It is taught as a main subject but also used as a tool to visualize problems from other areas of science. This task may be seen relatively easy to realize as robotics is very complex, encompassing mechanics, electronics, control, and software engineering. However, it requires a lot of invention to clearly present a problem and utilize robotic technology in the acceptable form. Robotics is also very attractive and entertaining; recently we can find a lot of competitions for robots and with robots. Therefore, the term 'learning through playing' becomes true.

As an outcome of a peer review process a set of eleven papers has been selected for this special issue. Among them, five papers are devoted to robotics in schools and universities and include some new educational methods. Two papers present development of new hardware and software components, while another two papers deal with increasingly popular framework – Robot Operating System (ROS). The remaining two articles are devoted to robotic competitions.

In the former group Amy Eguchi presents an educational robotics course from her school in New Jersey, where, except of a technical knowledge, cooperation and communication skills were the most important outcomes. Martin Kandlhofer and Gerald Steinbauer et al. propose to use robotics as a playful way to interest kindergarten children in science and technology. The original idea is to bring together kindergarten children, pupils up to the age of thirteen as well as senior citizens in order to initiate a vital social process between the different age groups. Development of the autonomous planetary rover as a hands-on project at the Technical University in Berlin is presented by Cem Avsar, Walter Frese et al. The idea of using project based learning and exploring spatial relationships in the context of designing and programming robot navigation, and developing remote distance sensors is brought by Dorothy Langley and Yair Zadok et al. Another case study showing elements of scrum in a students' robotics project is reported by Reinhard Gerndt and Ina Schiering et al.

The second group of papers includes a presentation from Thomas Kittenberger, Andreas Ferner et al. of a simple computer vision system for educational micro air vehicles, and a presentation from Nelson David Munoz and Jaime Valencia et al. about a mobile robot simulator.

In the third group Stefano Michieletto, Stefano Ghidoni et al. give an answer why to teach robotics using ROS while Igor Zubrycki and Grzegorz Granosik provide several practical examples how to easily introduce ROS and Arduino into robotics curricula.

In the following group Wojciech M. Czarnecki and Krzysztof Szarzyński et al. share their experience of organizing robotic competitions PozRobot based on LEGO NXT. Finally, Dario Lodi Rizzini and Stefano Caselli et al. present their design and implementation of the robotic system for the Sick Robot Day 2012 competitions.

I would like to express my gratitude to all the Reviewers engaged in the peer review process who helped us keep high quality standards of Jamris.

I hope this special issue will be interesting and inspiring for the readers.

Guest Editor,
Grzegorz Granosik, Dc.S. Eng.