Contents

Theory and Practice in Educational Robotics (Invited Papers)

Mindstorms Revisited: Making New Construals of Seymour Papert’s Legacy ................................................................. 3
Meurig Beynon

Primary Level Young Makers Programming & Making Electronics with Snap4Arduino ........................................... 20
Alfredo Pina and Iñaki Ciriza

Theater Meets Robot – Toward Inclusive STEAM Education ............ 34
Calkin Suero Montero and Ilkka Jormanainen

Educational Robotics Projects in School and Higher Education

A Training Course in Educational Robotics for Learning Support Teachers ................................................................. 43
Francesca Agatolio, Monica Pivetti, Silvia Di Battista, Emanuele Menegatti, and Michele Moro

A Didactical Model for Educational Robotics Activities: A Study on Improving Skills Through Strong or Minimal Guidance ............. 58
Soumela Atmatzidou and Stavros Demetriadis

The Effectiveness of Integrating Educational Robotic Activities into Higher Education Computer Science Curricula:
A Case Study in a Developing Country ........................................ 73
Ernest B.B. Gyebi, Marc Hanheide, and Grzegorz Cielniak

Educational Robotics and STEM Education in Primary Education:
A Pilot Study Using the H&S Electronic Systems Platform ........... 88
Maria Stergiopoulou, Anthi Karatrantou, and Chris Panagiotakopoulos
Duckietown: An Innovative Way to Teach Autonomy .......................... 104
Jacopo Tani, Liam Paull, Maria T. Zuber, Daniela Rus, Jonathan How,
John Leonard, and Andrea Censi

Teacher Education to Analyze and Design Systems through
Reverse Engineering .............................................................. 122
Igor Verner and Moshe Greenholts

Methodologies in Educational Robotics

29 Effective Ways You Can Use Robots in the Classroom .......... 135
Dave Catlin

Orbital Education Platform: Introducing Orbital Robotics
to Secondary Education ...................................................... 149
Nikolena Christofi, Evangelos G. Papadopoulos, and Iosif S. Paraskevas

A Scenario-Based Approach for Designing Educational Robotics
Activities for Co-creative Problem Solving ......................... 158
Vassilis Komis, Margarida Romero, and Anastasia Misirli

Assessment of Lower Secondary School Pupils’ Work
at Educational Robotics Classes ...................................... 170
Michaela Veselovská and Karolina Mayerová

Educational Robotics and Programming

The Use of Robotics in Introductory Programming
for Elementary Students ..................................................... 183
Lito Athanasiou, Paraskevi Topali, and Tassos A. Mikropoulos

The Combined Use of Lego Mindstorms NXT and App Inventor
for Teaching Novice Programmers ..................................... 193
Stamatios Papadakis and Vasileios Orfanakis

Educational Robots Driven by Tangible Programming Languages:
A Review on the Field ......................................................... 205
Theodosios Sapounidis and Stavros Demetriadis

Learning Programming with Educational Robotics: Towards
an Integrated Approach ....................................................... 215
Marios Xenos, Nikoleta Yiannoutsou, Marianthi Grizioti,
Chronis Kynigos, and Sofia Nikitopoulou

Short Papers Reporting Good Practices or Work in Progress
(Presented in the Conference as Posters)

Design Requirements for Educational Robotics Activities
for Sustaining Collaborative Problem Solving ...................... 225
Raoul Kamga, Margarida Romero, Vassilis Komis,
and Anastasia Mirsili
Hedgehog Light – A Versatile, White Box Educational Robotics Controller ........................................... 229
Clemens Koza, Wilfried Lepuschitz, Martin Wolff, Daniel Frank, and Gottfried Koppensteiner

Using LEGO Mindstorms as an Instructional Tool to Teach Science in Primary Education .......................... 233
Marievie Panayiotou and Nikleia Eteokleous-Grigoriou

Robotics Poetry........................................................................................................................................ 237
Angeliki D. Theodosi and Ermioni S. Deli

Programming Constructs in Curriculum for Educational Robotics at Lower Secondary School .................. 242
Michaela Veselovská and Karolína Mayerová

Intensive Robotics Education Approach in the Form of a Summer Camp .................................................. 246
Anton Yudin, Anatolii Vozhdaev, Dmitriy Sukhotskiy, Maria Salmina, Tatiana Sukhotskaya, and Vladimir Sukhotskiy

Anthropomorphic Robots and Human Meaning Makers in Education .................................................... 251
Karolina Zawieska and Agnieszka Spronśka

Author Index .............................................................................................................................................. 257
Educational Robotics in the Makers Era
Alimisis, D.; Moro, M.; Menegatti, E. (Eds.)
2017, XI, 258 p. 75 illus., Softcover
ISBN: 978-3-319-55552-2