Salvatore Anzalone, Luca Buoncompagni, Alberto Castellini, Alberto Finzi (Eds.)

Proceedings of the
AIRO 2021
The 8th Italian Workshop on
Artificial Intelligence and Robotics

Workshop co-located with AIxIA 2021
November 30, 2021
https://www.airo-aixia.it/airo2021/

Editors' addresses:

Salvatore M. Anzalone
Laboratoire de Cognitions Humaine et Artificielle
Université Paris 8
2 Rue de la Liberté - 93526, Saint-Denis, France
sanzalone@univ-paris8.fr

Luca Buoncompagni
Dipartimento di Informatica, Bioingegneria, Robotica e Ingegneria dei Sistemi
Università degli Studi di Genova
Via All'Opera Pia, 13 - 16145 Genova - Italy
luca.buoncompagni@edu.unige.it

Alberto Castellini
Dipartimento di Informatica
Università degli Studi di Verona
Ca Vignal 2, Strada le Grazie 15 - 37134, Verona, Italy
alberto.castellini@univr.it

Alberto Finzi
Dipartimento di Ingegneria Elettrica e Tecnologie dell'Informazione
Università degli Studi di Napoli Federico II
via Claudio 21- 80125 Napoli, Italy
alberto.finzi@unina.it

Preface

The goal of the Italian workshop series on Artificial Intelligence and RObotics (AIRO) is to present, discuss and assess recent advances in the deployment of Artificial Intelligence (AI) methods in Robotics. AI principles and methods play a crucial role in several areas of the robotics research (e.g. field, service, social robotics, etc.) and are pervasively exploited at various levels of robot architectures for different purposes: sensing and perception, reasoning and decision, learning, intelligent control, adaptive and social behavior, verification and validation methods, etc. Starting from these diverse -yet intertwined- research fields, the AIRO workshop series aims at providing an established long-term Italian forum where the AI community and the Robotics community may find an interesting and stimulating common ground.

This volume contains the proceedings of the eighth edition of the AIRO workshop[1], which was held on 30 November 2021 in conjunction with the 20th International Conference of the Italian Association for Artificial Intelligence (AIxIA 2021). Due to COVID-19, the AIRO 2021 workshop (along with all the events of AIxIA 2021) was virtually accessible "anywhere" in the world through the internet.

This edition of the AIRO workshop accepted 11 papers involving 40 authors. The program was structured into three sections *Collaborative and Social Robotics*, *Robot Planning and Learning*, and *Mobile Robotics*. The contributions covered several aspects of AI and Robotics in the areas of service, social, and assistive robotics and they were mainly concerned with the following research topics: human-robot interaction, robot learning, task planning, task assignment, learning and planning, multirobots, planning under uncertainty, cloud robotics, ontologies, robot navigation.

The workshop program also included the keynote talk of Prof. Alessandro Farinelli, full professor at the University of Verona, Department of Computer Science, titled *Safe Reinforcement Learning for Intelligent Robotic Systems*.

The research topics and the results collected in these proceedings illustrate the work of an active and multidisciplinary research community and confirm the growing interest in a forum where AI and Robotics researchers can find a common ground.

Salvatore Anzalone, Luca Buoncompagni, Alberto Castellini, Alberto Finzi
Workshop Organizers

---

[1] https://www.airo-aixia.it/airo2021/

Workshop Organization

Chairs

Alberto Finzi	University of Naples "Federico II"
Alberto Castellini	University of Verona
Luca Buoncompagni	University of Genoa
Salvatore Anzalone	Université Paris 8

Program Committee

Salvatore Anzalone	Université Paris 8
Luca Buoncompagni	University of Genoa
Jonathan Cacace	University of Naples "Federico II"
Riccardo Caccavale	University of Naples "Federico II"
Alberto Castellini	University of Verona
Alessandro Farinelli	University of Verona
Alberto Finzi	University of Naples "Federico II"
Luca Iocchi	University of Rome "La Sapienza"
Fulvio Mastrogiovanni	University of Genoa
Andrea Orlandini	Institute of Cognitive Science and Technologies, CNR