Gloria Beraldo, Alberto Castellini, Alberto Finzi, Fabio Patrizi (Eds.)

**Proceedings of the**

# AIRO 2024
# The 11th Italian Workshop on Artificial Intelligence and Robotics

Workshop co-located with AIxIA 2024
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https://www.airo-aixia.it/workshops/airo2024

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# 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 11th edition of the AIRO workshop[1], which was held on 26th of November 2024 in conjunction with the 23rd International Conference of the Italian Association for Artificial Intelligence (AIxIA 2024). This edition of the workshop was organized in close synergy with the Transversal Project 4 (Adjustable Autonomy and Physical Embodied Intelligence) of the National PNRR MUR Project FAIR (Future AI Research).

The 11th AIRO workshop accepted 12 papers (9 included in this volume) involving 48 authors. The program was structured into three sections: *Human Robot Interaction and Collaboration*, *Robot Learning*, *Planning and Robotics*.

The workshop program concluded with a final panel session on *Planning, Learning and Generative Models for Autonomous Robotics*. The panel, coordinated and moderated by Gloria Beraldo, Alberto Castellini, Alberto Finzi, and Fabio Patrizi involved the following invited speakers: Alfonso Emilio Gerevini (Università degli Studi di Brescia), Luca Iocchi (Sapienza, University of Rome), Luciano Serafini (Fondazione Bruno Kessler).

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

Gloria Beraldo, Alberto Castellini, Alberto Finzi, Fabio Patrizi
Workshop Organizers

[1] https://www.airo-aixia.it/workshops/airo2024

## Workshop Organization

### Chairs

| | |
|---|---|
| Gloria Beraldo | ISTC- CNR |
| Alberto Castellini | University of Verona |
| Alberto Finzi | University of Naples "Federico II" |
| Fabio Patrizi | Sapienza, University of Rome |

### Program Committee

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| Francesco Amigoni | Politecnico di Milano |
| Salvatore Anzalone | Université Paris 8 |
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| Riccardo Caccavale | University of Naples "Federico II" |
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| Luca Iocchi | Sapienza, University of Rome |
| Andrea Orlandini | ISTC-CNR |
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