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Preface

This volume contains the proceedings of the 22nd International Conference of the Italian Association for Artificial Intelligence (AIxIA 2023), the primary scientific event of the Associazione Italiana per l'Intelligenza Artificiale (AIxIA). AIxIA is a non-profit organization, dedicated to promoting the advancement of artificial intelligence (AI) within academic, social, and production contexts. The association established the series of international conferences in 1991, initially organizing an event every two years, and then maintaining an annual schedule from 2015 onwards. Over the years, the conference has visited many cities throughout the national territory, as reported in the LNCS proceedings of the various editions (https://link.springer.com/conference/aiia).

AIxIA 2023 was held in Rome, Italy, during November 6–9, hosted by the University of Roma Tre. The event took place on the occasion of the centenary of the foundation of the National Research Council of Italy (CNR) and was curated by CNR and the three main public universities of Rome, La Sapienza, Tor Vergata and Roma Tre.

The conference received 53 submissions for the regular research papers track. Each paper was carefully reviewed by at least three members of the Program Committee, and finally 33 papers were accepted for publication in these proceedings and presentation at the conference. Besides regular papers, the conference also received the submission of 15 discussion papers, i.e. position papers or extended abstracts of articles recently published in premier international conferences and journals related to AI. After a dedicated review process, 13 discussion papers were accepted for presentation at the conference.

AIxIA 2023 featured renowned keynote speakers. Specifically, three keynote talks were presented: 'The Evolution of Artificial Intelligence in Italy: A Personal Journey' by Luigia Carlucci Aiello, 'Artificial Intelligence: Some Thoughts?' by Stuart J. Russell, and 'Chatting with a Generative AI: A Personal Review', by Bernardo Magnini. The conference agenda also included two tutorials by Pietro Liò and Chiara Ghidini, a Doctoral Consortium, award events, a panel dedicated to FAIR, the largest AI project in Italy financed by the Italian Ministry for Universities and Research through the National Recovery and Resilience Plan (PNRR), and two satellite events: a public gathering titled 'Artificial Intelligence: Instructions for Use', focused on the impact of generative AI on schools and younger generations, and an event dedicated to the connections between AI and the business and industrial world.

Besides the main track, AIxIA 2023 encompassed a wide range of theoretical and applied AI aspects, with 19 co-located workshops dedicated to specific topics, bringing together AI communities with related interests:

- 7th Workshop on Advances in Argumentation in Artificial Intelligence (AI)
- 3rd Italian Workshop on Artificial Intelligence and Applications for Business and Industries (AIABI)
- 1st International Workshop on AI for Quantum and Quantum for AI (AIQxQIA)
- 10th Italian Workshop on Artificial Intelligence and Robotics (AIRO)
- 4th Italian Workshop on Artificial Intelligence for an Ageing Society (AIxAS)

- 1st International Workshop on High-Performance Artificial Intelligence Systems in Education (AIxEDU)
- 2nd Workshop on Artificial Intelligence for Human-Machine Interaction (AIxHMI)
- 1st Workshop on Artificial Intelligence for Perception and Artificial Consciousness (AIxPAC)
- 2nd Workshop on Bias, Ethical AI, Explainability and the Role of Logic and Logic Programming (BEWARE)
- 2nd Workshop on Artificial Intelligence & Creativity (CREAI)
- 2nd AIxIA Workshop on Artificial Intelligence for Healthcare (HC@AIxIA)
- 2nd Workshop on Artificial Intelligence for Cultural Heritage (IAI4CH)
- 11th Italian Workshop on Planning and Scheduling (IPS)
- 12th Italian Workshop on Machine Learning and Data Mining (MLDM)
- 7th Workshop on Natural Language for Artificial Intelligence (NL4AI)
- 5th Workshop on Artificial Intelligence and fOrmal VERification, Logic, Automata, and sYnthesis (OVERLAY)
- 30th Workshop of the Working group on Knowledge Representation and Automated Reasoning (RCRA)
- 2nd Workshop on Strategies, Prediction, Interaction, and Reasoning in Italy (SPIRIT)
- 4th Italian Workshop on Explainable Artificial Intelligence (XAI.it)

We express our gratitude to the various institutions and sponsors who supported AIxIA 2023, the AIxIA Executive Board for its steadfast assistance, the Rector of Roma Tre University, Massimiliano Fiorucci, for granting us the opportunity to host the conference in the facilities of the Department of Civil Engineering, Computer Science, and Aeronautical Technologies. We also want to thank all authors for submitting high-quality reearch papers, the members of the Program Committee and the additional reviewers for their efforts to produce fair and thorough evaluations of the submitted papers. Our heartfelt thanks also go to the Workshop and Tutorial chairs, Andrea Brunello and Danilo Croce, and the Doctoral Consortium chairs, Valentina Poggioni and Silvia Rossi, for their invaluable contributions in shaping an exciting program for AIxIA 2023. Finally, we would like to express our gratitude to all those who, in various capacities, contributed to the success of AIxIA 2023.

September 2023

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Contents

Argumentation and Logic Programming

ABALearn: An Automated Logic-Based Learning System for ABA Frameworks 3
Cristina Tirsi, Maurizio Proietti, and Francesca Toni

Deriving Dependency Graphs from Abstract Argumentation Frameworks 17
Stefano Bistarelli and Carlo Taticchi

RECONF: An Automatic Context-Based Software Reconfiguration Tool for Autonomous Vehicles Using Answer-Set Programming 30
Tobias Kain and Hans Tompits

Mining Contrast Sequential Patterns with ASP 44
Francesca Alessandra Lisi and Gioacchino Sterlicchio

Ontologies

An Ontological Modelling of Reason-Based Preferences 61
Daniele Porello

A Defeasible Description Logic for Abduction 74
Gian Luca Pozzato and Marco Spinnicchia

Ontology-Based Data Management in Healthcare: The Case of the Italian Arthroplasty Registry 88
Riccardo Valentini, Eugenio Carrani, Marina Torre, and Maurizio Lenzerini

Planning

A Structure-Sensitive Translation from Hybrid to Numeric Planning 105
Francesco Percassi, Enrico Scala, and Mauro Vallati

Intrinsically Motivated High-Level Planning for Agent Exploration 119
Gabriele Sartor, Angelo Oddi, Riccardo Rasconi, and Vieri Giuliano Santucci

Natural Language Processing

Mining Argument Components in Essays at Different Levels 137
Roberto Demaria, Davide Colla, Matteo Delsanto, Enrico Mensa, Enrico Pasini, and Daniele P. Radicioni

Unraveling ChatGPT: A Critical Analysis of AI-Generated Goal-Oriented Dialogues and Annotations 151
Tiziano Labruna, Sofia Brenna, Andrea Zaninello, and Bernardo Magnini

Scaling Large Language Models to the Extreme: Neural Semantic Processing of Multiple Tasks in Italian 172
Claudiu D. Hromei, Danilo Croce, Valerio Basile, and Roberto Basili

Named Entity Recognition and Linking for Entity Extraction from Italian Civil Judgements 187
Riccardo Pozzi, Riccardo Rubini, Christian Bernasconi, and Matteo Palmonari

Machine Learning

CENTAURO: An Explainable AI Approach for Customer Loyalty Prediction in Retail Sector 205
Giuseppina Andresini, Annalisa Appice, Pasquale Ardimento, Andrea Antonio Brunetta, Antonio Giuseppe Doronzo, Giuseppe Ieva, Francesco Luce, Donato Malerba, and Vincenzo Pasquadibisceglie

Toward Novel Optimizers: A Moreau-Yosida View of Gradient-Based Learning 218
Alessandro Betti, Gabriele Ciravegna, Marco Gori, Stefano Melacci, Kevin Mottin, and Frédéric Precioso

Mastering the Card Game of Jaipur Through Zero-Knowledge Self-Play Reinforcement Learning and Action Masks 231
Cristina Cutajar and Josef Bajada

Uncovering Bias in the Face Processing Pipeline: An Analysis of Popular and State-of-the-Art Algorithms Across Demographic Groups 245
Christian Galea, Chantelle Saliba, Matthew Sacco, Mark Bugeja, Noel Buttigieg, and Dylan Seychell

A Multi-label Classification Study for the Prediction of Long-COVID Syndrome 265
Marco Dossena, Christopher Irwin, Luca Piovesan, and Luigi Portinale

PAUL-2: An Upgraded Transformer-Based Redesign of the Algorithmic Composer PAUL 278
Felix Schön and Hans Tompits

Robotics and Perception

Understanding the Effect of Deep Ensembles in LiDAR-Based Place Recognition 295
Matteo Vaghi, Fabio D'Elia, Augusto Luis Ballardini, and Domenico Giorgio Sorrenti

Enhancing LiDAR Performance: Robust De-Skewing Exclusively Relying on Range Measurements 310
Omar Ashraf Ahmed Khairy Salem, Emanuele Giacomini, Leonardo Brizi, Luca Di Giammarino, and Giorgio Grisetti

Can Existing 3D Monocular Object Detection Methods Work in Roadside Contexts? A Reproducibility Study 321
Silvio Barra, Mirko Marras, Sondos Mohamed, Alessandro Sebastian Podda, and Roberto Saia

Embedding Shepard's Interpolation into CNN Models for Unguided Depth Completion 336
Shambel Fente Mengistu, Mara Pistellato, and Filippo Bergamasco

Performance Evaluation of Depth Completion Neural Networks for Various RGB-D Camera Technologies in Indoor Scenarios 351
Rino Castellano, Matteo Terreran, and Stefano Ghidoni

Hybrid AI

Inference in Probabilistic Answer Set Programming Under the Credal Semantics 367
Damiano Azzolini and Fabrizio Riguzzi

Efficient Modal Decision Trees 381
F. Manzella, G. Pagliarini, G. Sciavicco, and I. E. Stan

Clique-TF-IDF: A New Partitioning Framework Based on Dense Substructures 396
Marco D'Elia, Irene Finocchi, and Maurizio Patrignani

Combining Contrastive Learning and Knowledge Graph Embeddings to Develop Medical Word Embeddings for the Italian Language 411
Denys Amore Bondarenko, Roger Ferrod, and Luigi Di Caro

Applications of AI

Recognizing the Style, Genre, and Emotion of a Work of Art Through Visual and Knowledge Graph Embeddings 427
Giovanna Castellano, Raffaele Scaringi, and Gennaro Vessio

Combining Genetic Algorithms and Temporal Constraint Satisfaction for Recommending Personalized Tourist Itineraries 441
Federica Cena, Luca Console, Marta Micheli, and Fabiana Vernero

Towards Automatic Digitalization of Railway Engineering Schematics 453
Stefano Frizzo Stefenon, Marco Cristoforetti, and Alessandro Cimatti

Election Manipulation in Social Networks with Single-Peaked Agents 467
Vincenzo Auletta, Francesco Carbone, and Diodato Ferraioli

Learning to Prompt in the Classroom to Understand AI Limits: A Pilot Study 481
Emily Theophilou, Cansu Koyutürk, Mona Yavari, Sathya Bursic, Gregor Donabauer, Alessia Telari, Alessia Testa, Raffaele Boiano, Davinia Hernandez-Leo, Martin Ruskov, Davide Taibi, Alessandro Gabbiadini, and Dimitri Ognibene

Author Index 497