

# Preface

*Stefania Costantini - University of L'Aquila, Italy*  
*Enrico Pontelli - New Mexico State University, USA*  
*Roberta Calegari - University of Bologna, Italy*  
*Carmine Dodaro - University of Calabria, Italy*  
*Francesco Fabiano - University of Udine, Italy*  
*Sarah Gaggl - TU Dresden, Germany*  
*Artur Garcez - City University of London, UK*  
*Alessandra Mileo - DCU, Ireland*  
*Alessandra Russo - Imperial College London, UK*  
*Francesca Toni - Imperial College London, UK*

## Introduction

This volume contains the Technical Communications presented at the 39th International Conference on Logic Programming (ICLP 2023), held at Imperial College London, UK from July 9 to July 15, 2023. Technical Communications included here concern the Main Track, the Doctoral Consortium, the Application and Systems/Demo track, the Recently Published Research Track, the Thematic Tracks on Logic Programming and Machine Learning, and Logic Programming and Explainability, Ethics, and Trustworthiness.

The International Conference on Logic Programming (ICLP) is the premiere international scientific venue for presenting, discussing, and disseminating fundamental and applied research in the field of logic programming and in related interdisciplinary areas. The conference was launched in 1982, with its first edition in Marseille, France, and continues to serve the broad international logic programming community.

ICLP 2023 was a special edition of the conference as it represented the closing event of the "Year of Prolog" a year-long celebration of the 50th anniversary of the introduction of the Prolog programming language. The conference included a dedicated session to discuss the achievements accomplished throughout the year and the assignment of the 2023 Alan Colmerauer Prize, as well as an event on "*Teaching Prolog: the Next 50 Years.*"

ICLP 2023 also included an Industry Event, with the participation of representatives of several for-profit organizations engaged in the use of logic programming technologies. The event consisted of a panel discussion on the role of symbolic AI in today's AI industrial landscape. The Conference featured Invited Speakers: Marco Maratea (University of Calabria, Italy), presenting on applications of answer set programming; Jan Wielemaker (Centrum Wiskunde & Informatica, The Netherlands), presenting on the rise, fall, and future of Prolog; Keith Stenning (The University of Edinburgh, Scotland) for the special track on Logic Programming and Machine Learning; Gopal Gupta (University of Texas at Dallas, USA) for the special track on Logic Programming and Explainability, Ethics and Trustworthiness; Mehul Bhatt (Orebro University, Sweden), tutorialist speaking on Cognitive Vision; and Joseph Townsend (Fujitsu Research of Europe, UK), tutorialist speaking on medical applications of neuro symbolic AI.

TCs also include accepted short papers, summaries of system presentations, and accepted extended abstracts from the Recently Published Research Track. In particular: 26 papers have been accepted for regular TC publication; 5 papers have been accepted as short papers in the TC category; 8 papers have been accepted as system demonstrations. In addition, we received and accepted 11

abstracts for the Recently Published Research track. All of them received an allocation of time in the conference program for presentation. In order to foster the engagement of students and their precious contribution to the research community, ICLP also hosted a doctoral consortium with 9 accepted submissions, two of which by women. A mentoring lunch event with a dedicated panel session were specifically held in order to facilitate exchange of ideas and networking.

ICLP 2023 gratefully received generous funding from the following sponsors.

- Platinum Sponsors: Artificial Intelligence Journal; the National Science Foundation, USA.
- Gold Sponsors: SECCAI, School of Embedded Composite Artificial Intelligence, TU Dresden, and Leipzig University.
- Silver Sponsors: ILASP, DLVSystems.
- Bronze Sponsors: EurAI, European Association for Artificial Intelligence, Google DeepMind, Imperial College London and Imperial-X, LPA, New Mexico State University, Potassco Solutions.

The organizers of ICLP 2023 are listed below.

- General Chairs: Alessandra Russo and Francesca Toni, Imperial College London, UK.
- Program Chairs: Stefania Costantini, University of L'Aquila, Italy, and Enrico Pontelli, NewMexico State University, USA.
- Organizing and Publicity Chairs: Guilherme Paulino-Passos and Alex Spies, Imperial College London, UK.
- Workshop Chair: Wolfgang Faber, University of Klagenfurt, Austria.
- Thematic Tracks Chairs:
  - LP and Explainability, Ethics and Trustworthiness: Roberta Calegari, University of Bologna, Italy
  - LP and Machine Learning: Artur Garcez, City University of London, UK.
- Applications, Systems & Demos Chair: Carmine Dodaro, University of Calabria, Italy.
- Recently Published Research Chair: Sarah Gaggl, TU Dresden, Germany.
- Tutorials Chairs: Agostino Dovier, University of Udine, Italy, and Esra Erdem, Sabanci University, Turkey.
- Doctoral Consortium Chairs: Francesco Fabiano, University of Udine, Italy, and Alessandra Mileo, DCU, Ireland.
- Programming Contest Chairs: Martin Gebser, Graz University of Technology, Austria, and Mario Alviano, University of Calabria, Italy.
- Summer School Chairs: Simona Perri, University of Calabria, Italy, and Bart Bogaerts, Vrije Universiteit Brussel, Belgium.
- Women@ICLP Chair: Daniele Nantes Sobrinho, Universidade de Brasilia, Brazil, and Imperial College London, UK.
- Administrative Support: Teresa Carbajo Garcia, Julitta Iranek-Osmecka, and Teresa Ng, Imperial College London, UK.

We heartily thank the ICLP program committee members and additional reviewers for their valuable work. We express our gratitude to Thomas Eiter, the current President of the Association of Logic Programming (ALP), Marco Gavanelli, in the role of conference coordinator for ALP, and all the members of the ALP Executive Committee. We would like to recognize the outstanding work of the editorial team of EPTCS for their support. Last but not least, we are deeply indebted to all the authors of any submission to ICLP 2023, we thank you for choosing ICLP as the venue for sharing your ideas, your hard work, and your expertise.