Preface

This is an exciting time to be an artificial intelligence researcher. AI technologies and applications have truly entered our everyday lives, with AI systems in use throughout society. Against this backdrop of AI's remarkable success, the Twenty-Fourth International Joint Conference on Artificial Intelligence (IJCAI-2015), to be held in Buenos Aires, Argentina between 25 and 31 July 2015, is poised to break several records. This is the first time the flagship international AI conference has been held in South America, and the number of submissions to the technical program has reached an historical high. These proceedings collect some of the most exciting research taking place in AI today and offer a window into the future.

The theme of this year's conference is "Artificial Intelligence and Arts." Being held in Argentina, the home of Tango, the conference will feature invited talks, performances, demos and a technical track dedicated to the exploration and celebration of AI's growing role in the arts, both in enriching and producing arts and in injecting art into AI to make it an elegant and more accessible scientific discipline. This track is chaired by Ramon Lopez de Mantaras, Mark d'Inverno, and Francois Pachet, renowned artists and AI researchers themselves, who have put much thought and effort in organizing the program in creating this theme. What we have in IJCAI-2015 is a first-ever "AI and Arts" program that is inspiring, rigorous, and fun.

The technical program of the conference broke IJCAI's previous record, attracting 1,996 submissions in total. After rigorous reviewing, some 572 papers (28.6 percent) were accepted for presentation at the conference. All accepted papers are included as full-length papers in these proceedings and are invited to present as posters. Authors of all papers are invited to give oral presentations, where a distinction is made between long talks and short talks based on the papers' quality, clarity, and potential relevance to a wider audience.

The Program Committee did a thorough and highly professional job in reviewing the 1996 papers submitted to the conference. Every paper received at least three reviews, which were provided by members of the program committee (PC). The review process for each paper was overseen by at least one senior program committee (SPC) member, who monitored reviews and initiated discussion before and after the author feedback period. Each paper was also managed by an area chair (AC), who engaged in discussions and gave recommendations on the final decision based on the PC and SPC input. During the review process, author feedback was taken into account for the final discussion. When necessary, additional reviews were obtained. Finally, ACs, Track Chairs, and the Program Chair worked closely in making the final decisions. They held online meetings to discuss the final outcomes in detail. While the reviewing process is intensive, it ensures that IJCAI adheres to the highest standards of quality.

Besides the main technical track, we also introduced a number of special area tracks to allow the program committee to pay particular attention in identifying highly innovative papers in these areas. These are the Machine Learning Track, Knowledge Representation Track and Computational Sustainability Track. Track chairs were encouraged to be innovative in designing their programs. A new-problem paper type is introduced in the Machine Learning Track, for example, to allow researchers who report on novel AI and Machine Learning "problems" to have a voice. Special "integrated solution" sessions were also reserved for papers that address problems in machine learning while being integrated with other techniques in AI.

The end result is an IJCAI-2015 program of outstanding quality. We wish to express our deep appreciation to the track chairs for their outstanding and very professional organization of the review process: Ramon Lopez de Mantaras, Mark d'Inverno, and Francois Pachet (AI and Arts Track), Zhi-hua Zhou and Dale Schuurmans (Machine Learning Track), James Delgrande and Fangzhen Lin (Knowledge Representation Track) and Carla Gomes (Computational Sustainability Track). We also wish to express our sincere thanks to all 55 area chairs, 365 senior program committee members and 1429 PC members in all tracks for their dedication.

As part of the main technical program, we have eight exceptional invited speakers: Steve Chien, Julien Cornebise, Evgeniy Gabrilovich, Christof Koch, Michael L. Littman, Jon McCormack, Manuela M. Veloso, and Pete Wurman. Their talks present a representative cross-section of AI's success stories, ranging from the arts, deep space explorations, robotics, and brain science, to decision making and reasoning under uncertainty.

Our deep gratitude extends to the organizers of many other programs of the IJCAI-2015 conference, including the Journal Papers Track, the Best Papers from Sister Conferences Track, as well as the Doctoral Consortium, Video Competition, AI and Arts Demo, Robot Exhibition and Distinguished Paper Committee. Along with the main conference program, IJCAI-2015 features 43 workshops and 28 tutorials, thanks to the excellent organization of Jérôme Lang and Javier Legris (workshop chairs), and Pascal Poupart and Gerardo Simari (tutorials chairs). They all volunteered their time for IJCAI with great enthusiasm and did a fantastic job.

We also wish to thank Zhongqi Lu and Lili Zhao, two PhD student volunteers who worked on the ConfMaster system to handle the huge number of questions from authors and reviewers alike almost around the clock. They sacrificed their chance to submit pa-

pers to this IJCAI in order to do a fair job as the administration staff for the conference. We are indebted to their great effort and professionalism.

The conference organizing committee provided the much-needed support for the review process. We thank the IJCAI-2015 local chair Guillermo Simari who met our seemingly endless requests with patience, grace, and good humour. We thank the Web chair Diego Martinez and publicity chairs Shuiwang Ji and Ana Maguitman who have been efficient and prompt in promoting the conference and maintaining an active channel of communication with authors and attendees. We also wish to thank Vesna Sabljakovic-Fritz, the IJCAI Executive Secretary, who has been an incredible source of information and guidance about IJCAI practices. Mike Hamilton from AAAI Press has worked smoothly and professionally with us,

putting together these proceedings, and Thomas Preuss maintained the ConfMaster system, without which a conference of this magnitude would be unthinkable.

Finally, we wish to thank all authors of submitted technical papers, demos and exhibitions, for contributing to this great conference. With your high quality work and devotion, IJCAI continues its tradition of excellence and leadership in advancing the artificial intelligence discipline since IJCAI's inception in 1969.

– *Qiang Yang* (Program Chair)
– *Michael Wooldridge* (Conference Chair)