

Preface

The German conference on Artificial Intelligence (abbreviated KI for “Künstliche Intelligenz”) looks back on a long and fruitful history. The first official event took place in 1975, at that time a workshop of the KI working group of the German “Gesellschaft für Informatik” (association for computer science, GI). Before that, there were inofficial meetings, such as the “Fachtagung Kognitive Verfahren und Systeme”, which was held in Hamburg in April 1973. The meeting has now developed into an annual conference for researchers in artificial intelligence, primarily from Germany and its neighboring countries but open to international participation.

This volume contains the papers presented at the 40th event in this series, which was held at the Technical University of Dortmund, September 25–29th, 2017. This year we received 73 valid submissions, an increase of 50% over last year. We were able to accept 20 papers as full research papers and 16 as short technical communications, yielding an acceptance rate of 27% for full papers and 49% overall. Due to the limited number of available slots in the conference schedule, we had to make difficult decisions and several worthy submissions had to be rejected or downgraded from full to short papers.

The Program Committee worked very hard to thoroughly review all the submitted papers and to provide action points to improve the papers. Despite the increased workload for the PC, almost all papers received three reviews, and only 10 papers had to be selected or rejected on the basis of only 2 reviews. The program chairs managed discussions amongst the reviewers, from which the final decisions emerged. As a result, the contributions cover a range of topics from, e.g., agents, robotics, cognitive sciences, machine learning, planning, knowledge representation, reasoning, and ontologies, with numerous applications in areas like social media, psychology, and transportation systems, reflecting the richness and diversity of our field.

In addition to the regular sessions, our program also featured three invited talks by Pierre Baldi (University of California, Irvine), Gerhard Brewka (University of Leipzig), and Luc De Raedt (Katholieke Universiteit Leuven), as well as an industrial session featuring a keynote by Wolfgang Wahlster (Saarland University), and a session composed of presentations of selected papers by German authors that have been presented at our international sister conferences AAAI and IJCAI in 2017.

In order to celebrate the 40th anniversary of the German Conference on Artificial Intelligence, the program also contained a historical session with a panel discussion. The session was hosted by Ulrich Furbach, and contained contributions from the panelists Katharina Morik, Hans-Helmut Nagel, Bernd Neumann, and Jörg Siekmann. After a short review of the history of computer science and artificial intelligence in Germany by the host, the panelists commented on their early AI-related activities and the relationship of these activities with the computer science community at that time. Finally, the development of the field in recent years and its future was reflected in an open forum.

For the first two days of the conference, our workshop and tutorial chair, Christoph Beierle (University of Hagen), organized a program of two workshops:

- ZooOperation Competition (Vanessa Volz, Christian Eichhorn)
- Formal and Cognitive Reasoning (Christoph Beierle, Gabriele Kern-Isberner, Marco Ragni, Frieder Stolzenburg)

During the workshops, many additional papers were presented, ideas discussed, and experiences exchanged. Moreover, the program also featured two tutorials:

- Defeasible Reasoning for Description Logics (Ivan Varzinczak)
- Knowledge Representation and Reasoning with Nilsson-Style Probabilistic Logics (Nico Potyka)

Organizing such a traditional conference is a very challenging but no less rewarding experience, which would not have been possible without the help of the many individuals who contributed to the success of this event. First and foremost, we would like to thank the authors and the reviewers for their excellent work, which forms the core of any such meeting. We also thank our workshop and tutorial chair, the invited speakers, the workshop chairs and tutorial presenters, and the participants of the historical session, all of which have already been listed above. Last but not least, special thanks go to the local organization team from the Technical University of Dortmund, Christian Eichhorn, Steffen Schieweck, and Marco Wilhelm without whom this conference would not have been possible.

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Gabriele Kern-Isberner
Johannes Fürnkranz
Matthias Thimm



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