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Machine Learning and Knowledge Discovery in Databases

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Preface

We are delighted to introduce the proceedings of the 2019 edition of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD 2019). ECML PKDD is an annual conference that provides an international forum for the latest research in all areas related to machine learning and knowledge discovery in databases, including innovative applications. It is the premier European machine learning and data mining conference and builds upon a very successful series of ECML PKDD conferences.

ECML PKDD 2019 was held in Würzburg, Germany, during September 16–20, 2019. The conference attracted over 830 participants from 48 countries. It also received substantial attention from industry, both through sponsorship and participation at the conference.

The main conference program consisted of presentations and posters of 130 accepted papers and 5 keynote talks by the following distinguished speakers: Sumit Gulwani (Microsoft Research), Aude Billard (EPFL), Indrė Žliobaitė (University of Helsinki), Maria Florina Balcan (Carnegie Mellon University), and Tinne Tuytelaars (KU Leuven). In addition, there were 24 workshops, 8 tutorials, and 4 discovery challenges.

Papers were organized in three different tracks:

- Research Track: research or methodology papers from all areas in machine learning, knowledge discovery, and data mining
- Applied Data Science Track: papers on novel applications of machine learning, data mining, and knowledge discovery to solve real-world use cases, thereby bridging the gap between practice and current theory
- Journal Track: papers that were published in special issues of the journals *Machine Learning* and *Data Mining and Knowledge Discovery*

We received a record number of 733 submissions for the Research and Applied Data Science Tracks combined. We accepted 130 (18%) of these: 102 papers in the Research Track and 28 papers in the Applied Data Science Track. In addition, there were 32 papers from the Journal Track. All in all, the high-quality submissions allowed us to put together a very rich and exciting program.

For 60% of accepted Research Track and Applied Data Science Track papers, accompanying software and/or data were made available. These papers are flagged as Reproducible Research (RR) papers in the proceedings. RR flags, in use since 2016 in the ECML PKDD conference series, underline the importance given to RR in our community.

The Awards Committee selected research papers that were considered to be of exceptional quality and worthy of special recognition:

- Data Mining Best Student Paper Award: "FastPoint: Scalable Deep Point Processes" by Ali Caner Türkmen, Yuyang Wang, and Alexander J. Smola

- Machine Learning Best Student Paper Award: "Agnostic feature selection" by Guillaume Doquet and Michèle Sebag
- Test of Time Award for highest impact paper from ECML PKDD 2009: "Classifier Chains for Multi-label Classification" by Jesse Read, Bernhard Pfahringer, Geoff Holmes, and Eibe Frank

Besides the strong scientific program, ECML PKDD 2019 offered many opportunities to socialize and to get to know Würzburg. We mention the opening ceremony at the Neubau Church, the opening reception at the Residence Palace, the boat trip from Veitshöchheim to Würzburg, the gala dinner at the Congress Center, the poster session at the New University, and the poster session at the Residence Palace Wine Cellar. There were also social events for subgroups of participants, such as the PhD Forum, in which PhD students interacted with their peers and received constructive feedback on their research progress, and the Women in Science Lunch, in which junior and senior women met and discussed challenges and opportunities for women in science and technology.

We would like to thank all participants, authors, reviewers, area chairs, and organizers of workshops and tutorials for their contributions that helped make ECML PKDD 2019 a great success. Special thanks go to the University of Würzburg, especially to Lena Hettinger and the student volunteers, who did an amazing job. We would also like to thank the ECML PKDD Steering Committee and all sponsors. Finally, we thank Springer and Microsoft for their continuous support with the proceedings and the conference software.

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