

Preface

This volume contains the papers presented at MIKE 2017: the 5th International Conference on Mining Intelligence and Knowledge Exploration held during December 13–15, 2017, at the Institute for Development and Research in Banking Technology (IDRBT), Hyderabad, India (<http://www.mike.org.in/2017/>). MIKE 2017 received 139 qualified submissions from 17 countries and each qualified submission was reviewed by a minimum of three Program Committee members using the criteria of relevance, originality, technical quality, and presentation. A rigorous review process with the help of an illustrious Program Committee led to 40 of these submissions being accepted for presentation at the conference. Hence, the overall acceptance rate for this edition of MIKE is 28.78%.

The International Conference on Mining Intelligence and Knowledge Exploration (MIKE) is an initiative focusing on research and applications on various topics of human intelligence mining and knowledge discovery. Human intelligence has evolved steadily over several generations, and today human expertise is excelling in multiple domains and in knowledge-acquiring artifacts. The primary goal was to focus on the frontiers of human intelligence mining toward building a body of knowledge in this key domain. The focus was also to present state-of-art scientific results, to disseminate modern technologies, and to promote collaborative research in mining intelligence and knowledge exploration. At MIKE 2017, specific emphasis was placed on the “learning to explore smart and intelligent systems.”

MIKE 2017 identified nine tracks topic wise, each led by two to three track coordinators (in total, there were 23 track coordinators) to contribute and also to handle submissions falling in their areas of interest. The enthusiastic involvement from each of them along with the supervision of the program chairs ensured selection of only quality papers for the conference. Each track coordinator took enormous responsibility to fulfil the tasks assigned to them since we started circulating the first call for papers. This is reflected in every paper in the proceedings and had a huge impact on the quality of the submissions.

The accepted papers were chosen on the basis of research excellence, which provides a body of literature for researchers involved in exploring, developing, and validating learning algorithms and knowledge-discovery techniques. Accepted papers were grouped into various subtopics including artificial intelligence, machine learning, image processing, pattern recognition, speech processing, information retrieval, natural language processing, social network analysis, security, fuzzy rough sets, and other areas. Researchers presented their work and had an excellent opportunity to interact with eminent professors and scholars in their area of research. All participants benefited from discussions that facilitated the emergence of new ideas and approaches.

We were pleased to have the following dignitaries serving as advisory members for MIKE 2017: Prof. Ramon Lopaz de Mantaras, Artificial Intelligence Research Institute, Spain; Prof. Mandar Mitra, Indian Statistical Institute (ISI), Kolkata, India;

Prof. Agnar Aamodt, Pinar Ozturk and Prof. Bjorn Gambäck, Norwegian University of Science and Technology, Norway; Prof. Sudeshna Sarkar and Prof. Niloy Ganguly, Indian Institute of Technology, Kharagpur, India; Prof. Philip O'Reilly, University College Cork, Ireland; Prof. Nirmalie Wiratunga, Robert Gordon University, UK; Prof. Paolo Rosso, Universitat Politècnica de Valencia, Spain; Prof. Chaman L. Sabharwal, Missouri University of Science and Technology, USA; Prof. Tapio Saramaki, Tampere University of Technology, Finland; Prof. Vasudeva Verma, IIIT Hyderabad, India; Prof. Niloy Ganguly, Indian Institute of Technology, Kharagpur, India; Prof. Grigori Sidorov, NLTP Laboratory CIC - IPN, Mexico; Prof. Genoveva Vargas-Solar, CNRS, France; Prof. Ildar Batyrshin, National Polytechnic Institute, Mexico; Dr. Kazi Shah Nawaz Ripon, NTNU, Trondheim, Norway; and Dr. Krishnaiyya Jallu, Bharat Heavy Electronics Limited, Thiruchirappalli, India.

We sincerely express our gratitude to Prof. B. Yegnanarayana, INSA Senior Scientist, International Institute of Information Technology, Hyderabad, and Prof. Chaman Lal Sabharwal, Missouri University of Science and Technology, Rolla, USA, for being the general chairs. Their guidance, suggestions, and constant support were invaluable in planning the various activities of MIKE 2017.

Several eminent scholars — including Prof. Sankar Kumar Pal, Distinguished Scientist and Former Director, Indian Statistical Institute, Kolkata; Prof. Sung-Bae Cho, Yonsei University, Korea; Prof. Alexander Gelbukh, Instituto Politécnico Nacional, Mexico; and Prof. N. Subba Reddy, Gyeongsang National University, Jinju, Korea — delivered invited talks on various topics of artificial intelligence, machine learning, and soft computing.

We also organized two workshops on (a) Artificial Intelligence for Banking and Finance, organized by Dr. Rajarshi Pal of IDRB, Hyderabad, and (b) Deep Learning and Industrial Applications, organized by Dr. Krishnaiyya Jallu of BHEL, Hyderabad. These two workshops helped to motivate the young and aspiring researchers to participate in active research work.

A large number of eminent professors, well-known scholars, industry leaders, and young researchers participated in making MIKE 2017 a great success. We recognize and appreciate the hard work of each author of the articles published in these proceedings. We also express our sincere thanks to the Institute for Development and Research in Banking Technology (IDRB), Hyderabad, for allowing us to host MIKE 2017.

We thank the Technical Program Committee members and all reviewers for their timely and thorough participation in the reviewing process. We express our sincere gratitude to Shri Harun R. Khan, Former Deputy Governor, Reserve Bank of India, who kindly agreed to be the chief guest for the inauguration ceremony of MIKE 2017 as well as Dr. A. S. Ramasastri, Director, IDRB, Hyderabad, for his encouragement and support in organizing MIKE 2017 in IDRB, Hyderabad this year. We appreciate the time and effort invested by the members of the local organizing team at IDRB, Hyderabad, and IIIT Sricity. We are very grateful to all our sponsors for their generous support of MIKE 2017.

Finally, we acknowledge the use of EasyChair in the submission, review, and proceedings creation processes.

We are very pleased to express our sincere thanks to Springer staff, especially Alfred Hofmann, Anna Kramer, and the editorial team, for their faith and support in publishing the proceedings of MIKE 2017.

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