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(Eds.)




# ICT in Education, Research and Industrial Applications


Proceedings of the 16th International Conference,  
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This volume represents the proceedings of the Main Conference including the Posters track of the 16th International Conference on ICT in Education, Research, and Industrial Applications, held in Kharkiv, Ukraine, in October 2020. It comprises 41 contributed papers that were carefully peer-reviewed and selected from 103 submissions. The volume is organized in five parts. Parts I to IV contain the contributions to the Main ICTERI Conference tracks, structured in four topical sections: (I) Advances in ICT Research; (II) Information Systems: Technology and Applications; (III) Academia/Industry ICT Cooperation; and (IV) ICT in Education. Part V contains the contributions of the Posters track.

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# Preface

In these extraordinary and challenging times, it is our great pleasure to present you the proceedings of the Main Conference of ICTERI 2020, the sixteenth edition of the International Conference on Information and Communication Technologies in Education, Research, and Industrial Applications, held in Kharkiv (Ukraine) on October 5-10, 2020. ICTERI focuses on ICT research advances, industry/academic applications of Information and Communication Technologies, design and deployment of ICT Infrastructures and the emphasis is also put on real-world applications of ICT solutions. The current edition has a special focus on (i) ICT research advances, (ii) information systems technologies and applications, (iii) academic and industry cooperation in respect to Information and Communication Technologies, and, more relevant than ever, (iv) the role of ICT in Education.

The ICTERI 2020 Main Conference proceeding is structured following the above mentioned four thematic tracks and also contains a chapter presenting the short papers which constituted the program of our Posters track.

The conference program was complemented by a PhD Symposium, a Posters track, and six co-located workshops. The proceedings of the PhD Symposium and co-located workshops are published as separate volumes.

The rationale behind the Ph.D. Symposium sub-event is to offer an expert environment for the presentation of the tractable ideas and early results of PhD projects or other research aiming at receiving a PhD. The Posters track at ICTERI 2020 called for solution presentations and novel technology applications at an early stage of development.

Overall, the ICTERI 2020 Main Conference, with its Poster Track, attracted 103 paper submissions. Out of these submissions, we accepted 26 high quality and most interesting papers for the Main Conference program, in particular 14 full papers, 6 short papers, 5 discussion papers, 1 extended abstract, and 15 short poster papers. Main Conference papers were presented in 9 sessions. The posters were presented in three poster sessions. The acceptance rate was 39.8 percent.

The conference would not have been possible without the support of many people. First of all, we would like to thank all the authors who submitted papers to ICTERI 2020 and thus demonstrated their interest in the research problems within our scope. We are also very grateful to the members of our Program Committee for providing timely and thorough reviews and, also, for being cooperative in doing additional review work. We would like to thank the local organizers of the conference, the steering committee and also the team of the former ICTERI conference, especially Vadim Ermolayev, for their help and advice. Their devotion and efficiency made this instance of ICTERI a very interesting and effective scientific forum.

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