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ICTERI

ICT in Education, Research and Industrial Applications

Proceedings of the 17th International Conference,
ICTERI 2021. Volume I: Main Conference,
PhD Symposium, and Posters

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This edited collection represents Volume I of the proceedings of ICTERI 2021: the 17th International Conference on ICT in Education, Research, and Industrial Applications, held in Kherson, Ukraine, September-October 2021. The volume presents the abstracts of the two keynote talks and papers of the Main ICTERI Conference, its PhD Symposium, and Posters track. It comprises 40 contributed regular and short papers that were carefully peer-reviewed and selected from 111 submissions. The volume is organized in five parts. Part I presents the abstracts of the keynote talks. Parts II.1 to II.4 contain the contributions to the Main ICTERI Conference tracks: (II.1) Advances in ICT Research; (II.2) Information Systems: Technologies and Applications; (II.3) Academia/Industry ICT Cooperation; and (II.4) ICT in Education. Part III comprises the papers of the PhD Symposium. Part V contains the short papers presenting the contributions for the Posters track.

Preface

It is our great pleasure to present you Volume I of the proceedings of ICTERI 2021, the seventeenth edition of the International Conference on Information and Communication Technologies in Education, Research, and Industrial Applications, held in Kherson (Ukraine) on September 28 – October 2, 2021. ICTERI focuses on ICT research advances, industry/academic applications of Information and Communication Technologies, design and deployment of ICT Infrastructures. It puts the emphasis 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 (iv) ICT in Education.

The first volume of the proceedings of ICTERI 2021 presents the keynote talks given at the conference followed by the contributed papers of the Main Conference, PhD Symposium, and Posters track. The abstracts of the keynote talks are presented in Part I. Part II is the major part of the volume and is devoted to the Main Conference contributions. These papers are grouped in the four topical collections: II.1 Advances in ICT Research; II.2 Information Systems: Technologies and Applications; II.3 Academic-Industrial Collaboration on ICT; and II.4 ICT in Education and Education Management. Part III of the proceeding presents the contributions for the program of our PhD Symposium. Finally, Part IV presents the short papers describing the posters demonstrated in the Poster track of the conference.

The proceedings of the seven workshops co-located with ICTERI 2021 were published as a separate Volume II of the proceedings.

The Main Conference was, traditionally, the backbone track of ICTERI 2021. The aim of the track was to offer a forum for presenting and discussing quality contributions focused on research, design, development, deployment, and usage of advanced information systems and ICT infrastructures in industry and education. When forming the program, particular attention was paid to make sure that the presented ideas and solutions can be or have already been put into practice. This could have been demonstrated by a proof-of-concept implementation, a comprehensive prototype, a comprehensive case study, or the analysis of real use cases. Reports on academic-industrial partnerships for ICT innovation and knowledge transfer were as welcome as technological and methodological contributions. The Main Conference has attracted 79 submissions by the authors from eight countries in Europe, Asia, and Americas. Out of these submissions, we accepted 22 high quality and most interesting contributions, in particular 13 regular research, 5 short research papers, 2 discussion papers, and 2 industrial papers. Topic-wise, the accepted contributions were 3 in ICT research advances, 6 in information systems research and applications, 4 in academic-industrial collaboration in ICT, and 9 in ICT in education. The acceptance rate for the Main Conference was 27.8 percent. Main Conference contributions were presented in 10 topical sessions.

Similar to the previous conference instances, the rationale behind holding the PhD Symposium under the umbrella of ICTERI 2021 was 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 PhD Symposium has attracted 13 submissions by the authors from two European countries. Out of these submissions, we accepted 5 high quality and most interesting contributions, as short papers. Therefore, the acceptance rate for the PhD Symposium was 38.5 percent. The contributions to the PhD Symposium were presented in 2 topical sessions.

The Posters track at ICTERI 2020 called for solution presentations and novel technology applications at an early stage of development. The track has attracted 19 submissions all coming from Ukraine. Out of these poster submissions, we accepted 13 high quality and most interesting contributions, as short papers. The acceptance rate for the Poster track was 68.4 percent. The accepted posters were presented and discussed in 2 poster sessions.

The conference would not have been possible without the support of many people. We would like to thank all the authors who submitted papers to ICTERI 2021 and thus demonstrated their interest in the research problems within our scope. We are also very grateful to the members of our Program Committees for providing timely and thorough reviews and being cooperative in doing additional review work. We would like to thank the local organizers of the conference, the steering committee,

and the technical support team for their valuable service and help. Special thanks go to the sponsors of ICTERI 2021, whose financial and technical contributions enabled the materialization of this instance of ICTERI. All these people, their devotion, energy, and efficiency, made ICTERI 2021 a very interesting and effective scientific forum.

September – October 2021

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