Preface

This volume contains papers presented at the 5th *International Conference on Computer Science, Applied Mathematics and Applications* (ICCSAMA 2017) held on June 30 and July 1, 2017, in Berlin, Germany. The conference is co-organized by research group "Computer Science Education/Computer Science and Society" at Department of Informatics, Humboldt-Universität zu Berlin (Germany), Analysis, Design and Development of ICT systems (AddICT) Laboratory, Budapest University of Technology and Economics (Hungary), Division of Knowledge Management Systems, Wroclaw University of Science and Technology (Poland), and Theoretical and Applied Computer Science Laboratory, University of Lorraine (France) in cooperation with IEEE SMC Technical Committee on Computational Collective Intelligence.

The aim of ICCSAMA 2017 is to bring together leading academic scientists, researchers, and scholars to discuss and share their newest results in the fields of computer science, applied mathematics, and their applications. After the peer review process, 19 papers by authors from Austria, Chile, Ecuador, France, Germany, Hungary, Italy, India, Japan, Poland, Spain, Thailand, UK, and Vietnam have been selected for including in this proceedings.

In particular, ICCSAMA 2017 hosts the special session "Human Computer Communication and Intelligent Applications," which has been proposed and organized by Thepchai Supnithi (National Electronics and Computer Technology Center, Thailand), Thanaruk Theeramunkong (Thammasat University, Thailand), Tomoko Kojiri (Kansai University, Japan), Mahasak Ketcham (King Mongkut's University of Technology North Bangkok, Thailand), and Christoph Benzmüller (Freie Universität Berlin, Germany). In addition, the conference program is enriched by two keynotes that are given by Prof. Hiroshi Tsuji, President of Osaka Prefecture University (Japan), and Prof. Tomoko Kojiri, Kansai University (Japan).

The clear message of the proceedings is that the potentials of computational methods for knowledge engineering and optimization algorithms are to be exploited, and this is an opportunity and a challenge for researchers. It is observed that the ICCSAMA 2013–2016 clearly generated a significant amount of interaction between members of both communities on computer science and applied

mathematics. The intensive discussions have seeded future exciting development at the interface between computational methods, optimization, and engineering.

The works included in these proceedings would be useful for researchers, and Ph.D. and graduate students in optimization theory and knowledge engineering fields. It is the hope of the editors that readers can find many inspiring ideas and new research directions for their research. Many such challenges are suggested by particular approaches and models presented in the proceedings.

We would like to thank all authors, who contributed to the success of the conference and to this book. Special thanks go to the members of the Steering and Program Committees for their contributions to keeping the high quality of the selected papers. Cordial thanks are due to the Organizing Committee members for their efforts and the organizational work. We acknowledge Humboldt-Universität zu Berlin for hosting the conference ICCSAMA 2017. Finally, we cordially thank Springer for supports and publishing this volume.

We hope that ICCSAMA 2017 significantly contributes to the fulfillment of the academic excellence and leads to greater success of ICCSAMA events in the future.

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