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Elhadi Shakshuki (Eds.)

Communications in Computer and Information Science 1097

# Advances in Data Science, Cyber Security and IT Applications

First International Conference on Computing, ICC 2019
Riyadh, Saudi Arabia, December 10–12, 2019
Proceedings, Part I

## Part 1

Springer

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# Preface

A very warm welcome to the proceedings of ICC 2019. In light of the Saudi Arabia vision 2030, Princess Nourah Bint Abdulrahman University (PNU) held the International Conference on Computing on-campus, during December 10–12, 2019, in Riyadh, Saudi Arabia. At our conference, we brought executives, professionals, educators, researchers, and practitioners from across the world to one hub. In this hub, we spoke of tomorrow's challenges, suggested solutions, shared trading ideas, and analyzed and discussed current developments in information technology within data science, cybersecurity, network and IoT, as well as information technology and its applications.

ICC 2019 had five keynote speakers from all corners of the world and four technical tracks dealing with the aspects of data science, cybersecurity, networks and IoT, information technology and its applications. All submitted papers underwent a rigorous peer-review process by a Technical Program Committee (TPC) consisting of an international group of interdisciplinary scientists and engineers. The accepted papers were then revised according to the referees' comments for camera-ready submission to the conference. These papers covered a broad range of topics within the field of: big data and analytics, bioinformatics, distributed systems, AI, network security, access control, ubiquitous computing, IoT networks, software engineering, and computer-aided design. ICC 2019 received 174 paper submissions. Each paper received a minimum of 3 reviews, and we accepted 53 papers (an acceptance rate of 38%).

One of the goals of ICC 2019 was to foster collaboration among the scientists and the practitioners developing the concepts to solve various real-world problems. It was our wish and hope that the people participating in the conference would find common ground on which they could learn from each other, and that the conference would engender future fruitful scientific activities. Such collaborative endeavours are necessary for the development of the cutting-edge solutions embodied within our society and its fabrics.

We wish to thank the general chairs, the local arrangements chairs, the publicity chairs, the TPC and reviewers, the participants, and, most importantly, the researchers who submitted the articles to make this event a success. Furthermore, we would like to extend our gratitude to PNU who supported the organization of this conference at every stage.

November 2019

Auhood Alfaries
Hanan Mengash
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