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**249**

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Cheikh M. F. Kebe · Assane Gueye  
Ababacar Ndiaye · Aminata Garba (Eds.)

# Innovations and Interdisciplinary Solutions for Underserved Areas

Second International Conference, InterSol 2018  
Kigali, Rwanda, March 24–25, 2018  
Proceedings

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# Preface

InterSol is an international conference that meets annually in Africa and brings together scientists from around the world. It serves as a framework where participants present the results of research projects that address issues faced by people in underserved areas. In fact, populations living in underserved areas face problems in almost all sectors, particularly in energy, water, communication, climate, food, health, education, transportation, social development, and economic growth, just to name a few. Moreover, experience has shown that none of these issues can be solved in isolation to the others: they are all interdependent. Therefore, any sustainable and effective solution must integrate an interdisciplinary dimension, involving expertise from several disciplines, while taking into account certain geographical, social, economic, and environmental specificities. This is the main motivation behind Interdisciplinary Solutions (InterSol); an international conference dedicated to the advancement of interdisciplinary research works that address people's needs in underserved areas.

The first edition was held in Dakar, Senegal (April 11–12, 2017) and validated our choice, given the number, the diversity, and the quality of submitted and accepted papers. This second edition, held in Kigali, Rwanda, during March 24–25, 2018, witnessed the participation of researchers (academia and industry), graduate students, NGO professionals (from Africa, Europe, America, and Asia), as well government officials, who discussed for two days results in the themes defined in the conference main track as well as during the workshop on climate change, co-located with the conference. Finally, like the previous edition, InterSol 2018 hosted the CNRIA (Colloque National sur la Recherche en Informatique et ses Applications) workshop, held during April 18–21, 2018, in Ziguinchor, Senegal.

This volume presents papers accepted for publication and presented during InterSol2018 and CNRIA 2018. It includes 23 articles, eight of which were part of CNRIA.

The papers presented in the main track address issues in the following themes:

- Energy: with papers dealing with the development of the performance of solar systems in Africa, the wind potential in Chad, and building energy efficiency in Africa
- Socio-economic: with papers addressing the issues of public health, communication, education, and access to energy
- Telecom: with papers studying the business model of telecommunication in the Rwandan context and the phenomenon of boomerang routing in intra-Africa communications
- Math models: in which the papers present mathematical models of the climatic phenomenon and prediction models for solar radiation in Africa
- Health: with papers dealing with developing medical devices that are suitable to underserved areas

The workshop on climate change (Beyond the Debate: Climate Change as an Economic Opportunity for Africa) offered a unique opportunity to discuss the impacts of climate in Africa, the solutions that need to be developed, as well as the most appropriate means for climate change control and adaptation in underserved areas. A round table on the issue of climate change in Africa concluded this session.

This volume, like the previous one, will serve as a channel for disseminating the solutions proposed during this two-day conference.

June 2018

Cheikh M. F. Kebe  
Assane Gueye  
Ababacar Ndiaye  
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