Communications in Computer and Information Science 1169

Commenced Publication in 2007
Founding and Former Series Editors:
Phoebe Chen, Alfredo Cuzzocrea, Xiaoyong Du, Orhun Kara, Ting Liu, Krishna M. Sivalingam, Dominik Ślęzak, Takashi Washio, Xiaokang Yang, and Junsong Yuan

Editorial Board Members

More information about this series at http://www.springer.com/series/7899

Quan Yu (Ed.)

Space Information Networks

4th International Conference, SINC 2019
Wuzhen, China, September 19–20, 2019
Revised Selected Papers

Springer

Editor
Quan Yu
Institute of China Electronic Equipment
Beijing, China

ISSN 1865-0929 ISSN 1865-0937 (electronic)
Communications in Computer and Information Science
ISBN 978-981-15-3441-6 ISBN 978-981-15-3442-3 (eBook)
https://doi.org/10.1007/978-981-15-3442-3

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd.
The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Preface

This book collects the papers presented at the 4th Space Information Network Conference (SINC 2019), an annual conference organized by the Department of Information Science, National Natural Science Foundation of China. SINC is supported by the key research project of the basic theory and key technology of space information network of the National Natural Science Foundation of China, and organized by the "space information network" major research program guidance group. The aim is to explore new progress and developments in space information networks and related fields, to show the latest technology and academic achievements in space information networks, to build an academic exchange platform for researchers at home and abroad working on space information networks and industry sectors, to share the achievements and experience of research and applications, and to discuss the new theory and new technologies in space information networks. There were two tracks in SINC 2019: Architecture and Efficient Networking Mechanism and Theories and Methods of High Speed Transmission.

This year, SINC received 118 submissions, including 83 English papers and 35 Chinese papers. After a thorough reviewing process, 23 outstanding English papers were selected for this volume (retrieved by EI), accounting for 27.7% of the total number of English papers.

The high-quality program would not have been possible without the authors who chose SINC 2019 as a venue for their publications. We are also very grateful to the Academic Committee and Organizing Committee members, who put a tremendous amount of effort into soliciting and selecting research papers with a balance of high quality, new ideas, and new applications.

We hope that you enjoy reading and benefit from the proceedings of SINC 2019.

November 2019 Quan Yu

Organization

SINC 2019 was organized by the Department of Information Science, National Natural Science Foundation of China; the Department of Information and Electronic Engineering, Chinese Academy of Engineering; China InfoCom Media Group; and the *Journal of Communications and Information Networks*.

Organizing Committee

General Chairs

Quan Yu	Institute of China Electronic Equipment System Engineering Corporation, China
Jianya Gong	Wuhan University, China
Jianhua Lu	Tsinghua University, China

Steering Committee

Zhixin Zhou	Beijing Institute of Remote Sensing Information, China
Hsiao-Hwa Chen	National Cheng Kung University, Taiwan, China
George K. Karagiannidis	Aristotle University of Thessaloniki, Greece
Xiaohu You	Southeast University, China
Dongjin Wang	University of Science and Technology of China, China
Jun Zhang	Beihang University, China
Haitao Wu	Chinese Academy of Sciences, China
Jianwei Liu	Beihang University, China
Zhaotian Zhang	National Nature Science Foundation of China, China
Xiaoyun Xiong	National Nature Science Foundation of China, China
Zhaohui Son	National Nature Science Foundation of China, China
Ning Ge	Tsinghua University, China
Feng Liu	Beihang University, China
Mi Wang	Wuhan University, China
ChangWen Chen	The State University of New York at Buffalo, USA
Ronghong Jin	Shanghai Jiao Tong University, China

Technical Program Committee

Jian Yan	Tsinghua University, China
Min Sheng	Xidian University, China
Junfeng Wang	Sichuan University, China
Depeng Jin	Tsinghua University, China
Hongyan Li	Xidian University, China
Qinyu Zhang	Harbin Institute of Technology, China
Qingyang Song	Northeastern University, China
Lixiang Liu	Chinese Academy of Sciences, China

Weidong Wang	Beijing University of Posts and Telecommunications, China
Chundong She	Beijing University of Posts and Telecommunications, China
Zhihua Yang	Harbin Institute of Technology, China
Minjian Zhao	Zhejiang University, China
Yong Ren	Tsinghua University, China
Yingkui Gong	University of Chinese Academy of Sciences, China
Xianbin Cao	Beihang University, China
Chengsheng Pan	Dalian University, China
Shuyuan Yang	Xidian University, China
Xiaoming Tao	Tsinghua University, China

Organizing Committee

Chunhong Pan	Chinese Academy of Sciences, China
Yafeng Zhan	Tsinghua University, China
Liuguo Yin	Tsinghua University, China
Jinho Choi	Gwangju Institute of Science and Technology, South Korea
Yuguang Fang	University of Florida, USA
Lajos Hanzo	University of Southampton, UK
Jianhua He	Aston University, UK
Y. Thomas Hou	Virginia Polytechnic Institute and State University, USA
Ahmed Kamal	Iowa State University, USA
Nei Kato	Tohoku University, Japan
Geoffrey Ye Li	Georgia Institute of Technology, USA
Jiandong Li	Xidian University, China
Shaoqian Li	University of Electronic Science and Technology of China, China
Jianfeng Ma	Xidian University, China
Xiao Ma	Sun Yat-sen University, China
Shiwen Mao	Auburn University, USA
Luoming Meng	Beijing University of Posts and Telecommunications, China
Joseph Mitola	Stevens Institute of Technology, USA
Sherman Shen	University of Waterloo, Canada
Zhongxiang Shen	Nanyang Technological University, Singapore
William Shieh	University of Melbourne, Australia
Meixia Tao	Shanghai Jiao Tong University, China
Xinbing Wang	Shanghai Jiao Tong University, China
Feng Wu	University of Science and Technology of China, China
Jianping Wu	Tsinghua University, China
Xiang-Gen Xia	University of Delaware, USA
Hongke Zhang	Beijing Jiaotong University, China

Youping Zhao	Beijing Jiaotong University, China
Hongbo Zhu	Nanjing University of Posts and Telecommunications, China
Weiping Zhu	Concordia University, Canada
Lin Bai	Beihang University, China
Shaohua Yu	FiberHome Technologies Group, China
Honggang Zhang	Zhejiang University, China
Shaoqiu Xiao	University of Electronic Science and Technology of China, China

Contents

Architecture and Efficient Networking Mechanism