ISSN: 1913-3715 Volume 10, Number 10, October 2017



# International Journal of Communications, Network and System Sciences



www.scirp.org/journal/ijcns

# JOURNAL EDITORIAL BOARD

ISSN 1913-3715 (Print) ISSN 1913-3723 (Online) http://www.scirp.org/journal/ijcns

#### **Editor-in-Chief**

Prof. Boris S. Verkhovsky

New Jersey Institute of Technology, USA

### **Editorial Board**

Dr. Hamid Ali Abed Al-Asadi Prof. Sabri Arik Prof. Jalel Ben-Othman Prof. Zhenmin Chen Prof. Ko Chi Chung Prof. Daniel B. da Costa **Dr. Franca Delmastro** Dr. Qiang Duan Prof. Md. B. El-Mashade Prof. Kurt J. Engemann Prof. Morteza Esmaeili **Prof. George Ghinea** Prof. William A. Gruver Dr. Zhiyi Huang Prof. Anca Daniela Ionita Prof. Hiroaki Ishii **Dr.** Chris Joslin Prof. Jozef Kelemen Prof. Alexander M. Korsunsky **Prof. Felipe Lara-Rosano** Prof. Shahram Latifi Dr. Nicola Mastronardi **Dr. Yuriy Polyakov** Prof. Jianbin Qiu Prof. Kosai Raoof **Prof. Gerhard Ritter** Dr. Ashok N. Rudrapatna Dr. Arif Sari Prof. Innokentiy V. Semushin **Prof. Sergei Silvestrov** Dr. Maolin Tang **Prof. Zahir Tari** Prof. Hrishikesh Venkataraman Prof. Lotfi A. Zadeh

Basra University, Iraq Istanbul University, Turkey Université de Paris, France Florida International University, USA National University of Singapore, Singapore Federal University of Ceará, Brazil National Research Council, Italy Pennsylvania State University Abington College, USA Al-Azhar University, Egypt Iona College, USA Isfahan University of Technology, Iran Brunel University, UK Simon Fraser University, Canada University of Otago, New Zealand University Politehnica of Bucharest, Romania Kwansei Gakuin University, Japan Carleton University, Canada Silesian University, Czech Republic Oxford University, UK National Autonomous University of Mexico, Mexico University of Nevada, USA National Research Council, Italy New Jersey Institute of Technology, USA Harbin Institute of Technology, China Joseph Fourier University, France University of Florida, USA Bell Labs, Alcatel-Lucent, USA Girne American University, Cyprus Ulyanovsk State University, Russia Mälardalen University, Sweden Queensland University of Technology, Australia RMIT University, Australia Dublin City University, Ireland University of California, USA



# **Table of Contents**

# Volume 10 Number 10

# October 2017

The Hierarchy Structure in Directed and Undirected Signed Networks		
J. Maktoubian, M. Noori, M. Amini, M. Ghasempour-Mouziraji	209	
A Markov Based Performance Analysis of Handover and Load Balancing in HetNets		
B. L. Zhang, W. J. Qi, J. Zhang	223	
QoS Parametric Inspection of Uniform and Assorted Trajectories for MANET Routing Protocols		
N. Sehwani, S. Rahman, A. Harris	234	

## International Journal of Communications, Network and System Sciences (IJCNS) Journal Information

#### SUBSCRIPTIONS

The *International Journal of Communications, Network and System Sciences* (Online at Scientific Research Publishing, www.SciRP.org) is published monthly by Scientific Research Publishing, Inc., USA.

#### Subscription rates:

Print: \$89 per issue. To subscribe, please contact Journals Subscriptions Department, E-mail: <u>sub@scirp.org</u>

#### SERVICES

Advertisements Advertisement Sales Department, E-mail: service@scirp.org

#### Reprints (minimum quantity 100 copies)

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA. E-mail: <u>sub@scirp.org</u>

#### COPYRIGHT

#### Copyright and reuse rights for the front matter of the journal:

Copyright © 2017 by Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY). http://creativecommons.org/licenses/by/4.0/

#### Copyright for individual papers of the journal:

Copyright © 2017 by author(s) and Scientific Research Publishing Inc.

#### Reuse rights for individual papers:

Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

#### Disclaimer of liability

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

#### SPONSOR

International School of Software, Wuhan University (iss.whu.edu.cn).

#### **PRODUCTION INFORMATION**

For manuscripts that have been accepted for publication, please contact: E-mail: <u>ijcns@scirp.org</u>

# **Call for Papers**



System Sciences

# International Journal of Communications, Network and System Sciences (IJCNS)

ISSN 1913-3715 (Print) ISSN 1913-3723 (Online) http://www.scirp.org/journal/ijcns

**IJCNS** is an international refereed journal dedicated to the latest advancement of communications and network technologies. The goal of this journal is to keep a record of the state-of-the-art research and promote the research work in these fast moving areas.

### Editor-in-Chief

Prof. Boris S. Verkhovsky

New Jersey Institute of Technology, USA

#### Subject Coverage

This journal invites original research and review papers that address the following issues in wireless communications and networks. Topics of interest include, but are not limited to:

Ad Hoc and Mesh Networks	Network Protocol, QoS and Congestion Control
Coding, Detection and Modulation	Network Survivability
Cognitive Radio	Next Generation Network Architectures
Communication Networks Architecture Design	Reconfigurable Networks
Communication Reliability and Privacy	Resource Management
Communication Security and Information Assurance	Satellite Communication
Cooperative Communications	Sensor Networks
Embedded Distributed Systems	Simulation and Optimization Tools
Global Networks	UWB Technologies
Heterogeneous Networking	Wave Propagation and Antenna Design
Microprocessor	Wireless Personal Communications
MIMO and OFDM Technologies	

We are also interested in short papers (letters) that clearly address a specific problem, and short survey or position papers that sketch the results or problems on a specific topic. Authors of selected short papers would be invited to write a regular paper on the same topic for future issues of the IJCNS.

#### Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. For more details about the submissions, please access the website.

### Website and E-Mail

http://www.scirp.org/journal/ijcns

## What is SCIRP?

Scientific Research Publishing (SCIRP) is one of the largest Open Access journal publishers. It is currently publishing more than 200 open access, online, peer-reviewed journals covering a wide range of academic disciplines. SCIRP serves the worldwide academic communities and contributes to the progress and application of science with its publication.

# What is Open Access?

Art and Design Review

Advances in

dvances in Biological bemistry Entomolog

Applied Mathematics

Engineering

uitit e

All original research papers published by SCIRP are made freely and permanently accessible online immediately upon publication. To be able to provide open access journals, SCIRP defrays operation costs from authors and subscription charges only for its printed version. Open access publishing allows an immediate, worldwide, barrier-free, open access to the full text of research papers, which is in the best interests of the scientific community.

- High visibility for maximum global exposure with open access publishing model
- Rigorous peer review of research papers
- Prompt faster publication with less cost
- Guaranteed targeted, multidisciplinary audience



Soft

Website: http://www.scirp.org Subscription: sub@scirp.org Advertisement: service@scirp.org