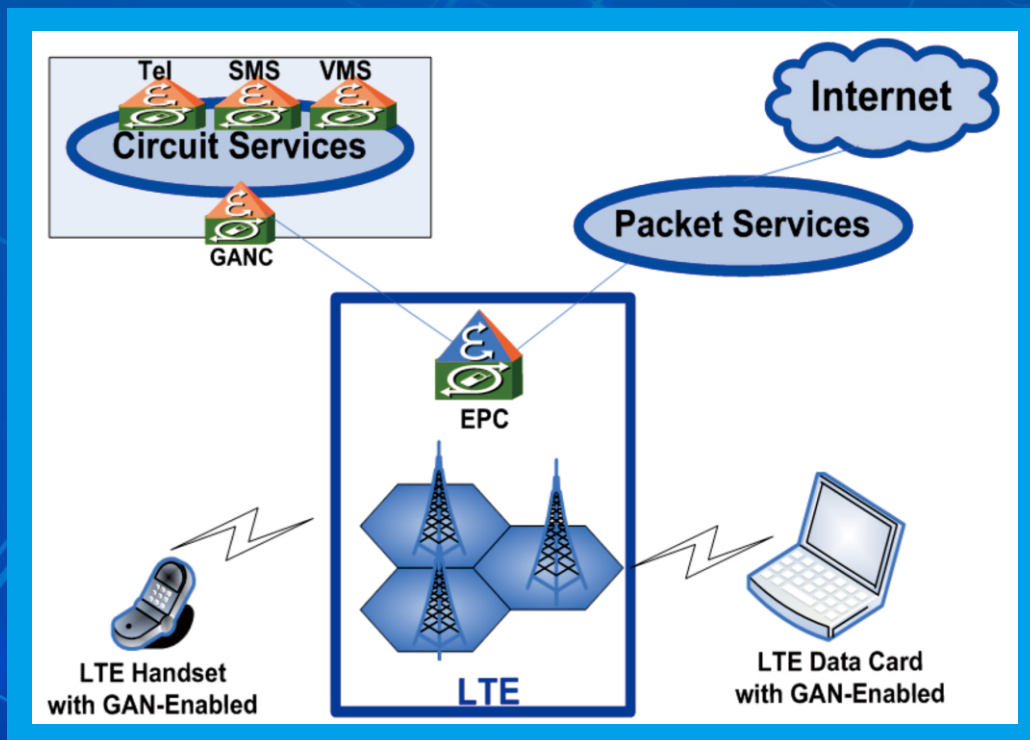


# Communications and Network



ISSN: 1949-2421



# Journal Editorial Board

ISSN Print: 1949-2421 ISSN Online: 1947-3826

<http://www.scirp.org/journal/cn>

---

## Editor in Chief

**Prof. Hamed Al-Raweshidy** Brunel University, UK

## Editorial Board

<b>Prof. Photios Anninos</b>	Democritus University of Thrace, Greece
<b>Prof. Bharat Bhargava</b>	Purdue University, USA
<b>Prof. Ruay-Shiung Chang</b>	National Dong Hwa University, Chinese Taipei
<b>Dr. Ai Chen</b>	Chinese Academy of Sciences, China
<b>Dr. Xiaochun Cheng</b>	Middlesex University, UK
<b>Dr. Yoon-Ho Choi</b>	Samsung Electronics Co. Ltd., Korea (South)
<b>Dr. Nagy Ibrahim Elakalashy</b>	Minoufiya University, Egypt
<b>Dr. Abdullah Eroglu</b>	Indiana University-Purdue University Fort Wayne, USA
<b>Dr. Xiaopeng Fan</b>	Harbin Institute of Technology (HIT), China
<b>Prof. Shuzhi Sam Ge</b>	University of Electronic Science and Technology of China, China
<b>Dr. Cunqing Hua</b>	Shanghai Jiao Tong University, China
<b>Dr. Winai Jaikla</b>	King Mongkut's Institute of Technology Ladkrabang, Thailand
<b>Dr. Shanshan Jiang</b>	Broadcom Corporation, USA
<b>Dr. Xiaohong Jiang</b>	Tohoku University, Japan
<b>Dr. Rami Langar</b>	University of Pierre and Marie Curie, France
<b>Dr. Yu Liu</b>	Qualcomm Incorporated, USA
<b>Prof. Hussein Mouftah</b>	University of Ottawa, Canada
<b>Prof. Jean-Frederic Myoupo</b>	University of Picardie-Jules Verne, France
<b>Dr. Lu Peng</b>	Louisiana State University, USA
<b>Prof. Eng. Sattar B. Sadkhan</b>	Babylon University, Iraq
<b>Dr. Xiaojun Wang</b>	Dublin City University, Ireland
<b>Dr. Jonathan Wellons</b>	Vanderbilt University, USA
<b>Dr. Yong Xiang</b>	Deakin University, Australia
<b>Dr. Hsiang-Fu Yu</b>	National Taipei University of Education, Chinese Taipei
<b>Prof. Francesco Zirilli</b>	Sapienza Universita di Roma, Italy

## TABLE OF CONTENTS

Volume 4 Number 2

May 2012

### **An Investigation on the Effect of Migration Strategy on Parallel GA-Based Shortest Path Routing Algorithm**

S. Yussof, R. A. Razali.....93

### **Optimal Number of Relays in Cooperative Communication in Wireless Sensor Networks**

W. Mardini, Y. Khamayseh, S. Al-Eide.....101

### **Inter-Network Resource Sharing in IEEE 802.22 Networks**

C. Passiatore, P. Camarda.....111

### **Solutions Comparison towards Voice Services Implementation for Operators Starting LTE Deployment**

Y. Jouihri, Z. Guennoun.....122

### **MAC-PHY Cross-Layer for High Channel Capacity of Multiple-Hop MIMO Relay System**

P. T. Hiep, C. Sugimoto, R. Kohno.....129

### **An Average Power Reduction Method for Web Applications on Wireless Terminals**

T. Koyasu, H. Shimada, K. Sato.....139

### **The Tight Bound for the Number of Pilots in Channel Estimation for OFDM Systems**

M. Imani, H. Bakhshi.....146

### **Load Balancing in IP/MPLS Networks: A Survey**

R. K. Singh, N. S. Chaudhari, K. Saxena.....151

### **Homogeneous and Heterogeneous Traffic of Data Packets on Complex Networks: The Traffic Congestion Phenomenon**

A. Farina, A. Graziano, F. Mariani, M. C. Recchioni, F. Zirilli.....157

### **Study of Modeling for Scalable and Monitorable Network on Chip**

G. M. Du, Y. L. Zhu, C. Q. Zhang, Y. K. Song.....183

---

The figure on the front cover is from the article published in Communications and Network, 2012, Vol. 4, No. 2, pp. 122-128 by Youness Jouihri and Zouhair Guennoun.

## **Communications and Network (CN)**

### **Journal Information**

#### **SUBSCRIPTIONS**

The *Communications and Network* (Online at Scientific Research Publishing, [www.SciRP.org](http://www.SciRP.org)) is published quarterly by Scientific Research Publishing, Inc., USA.

#### **Subscription rates:**

Print: \$59 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: [sub@scirp.org](mailto:sub@scirp.org)

#### **SERVICES**

##### **Advertisements**

Advertisement Sales Department, E-mail: [service@scirp.org](mailto:service@scirp.org)

##### **Reprints (minimum quantity 100 copies)**

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: [sub@scirp.org](mailto:sub@scirp.org)

#### **COPYRIGHT**

Copyright©2012 Scientific Research Publishing, Inc.

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as described below, without the permission in writing of the Publisher.

Copying of articles is not permitted except for personal and internal use, to the extent permitted by national copyright law, or under the terms of a license issued by the national Reproduction Rights Organization.

Requests for permission for other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale, and other enquiries should be addressed to the Publisher.

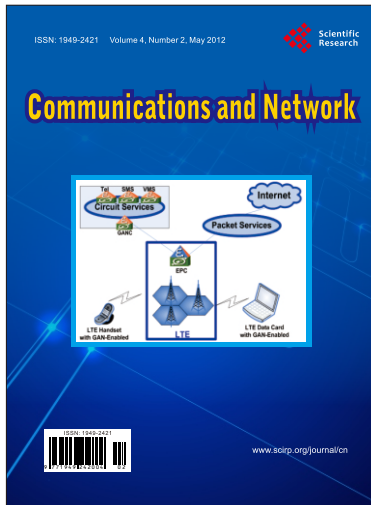
Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any 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.

#### **PRODUCTION INFORMATION**

For manuscripts that have been accepted for publication, please contact:

E-mail: [cn@scirp.org](mailto:cn@scirp.org)

Call for Papers



# Communications and Network

ISSN 1949-2421 (print) ISSN 1947-3826 (online)

[www.scirp.org/journal/cn](http://www.scirp.org/journal/cn)

CN, an international journal, dedicates 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. Hamed Al-Rawashidy**

Brunel University, UK

All manuscripts submitted to CN must be previously unpublished and may not be considered for publication elsewhere at any time during CN's review period. Additionally, accepted ones will immediately appear online followed by printed in hard copy. The topics to be covered by Communications and Network include, but are not limited to:

- ◆ Algorithms and Programs
- ◆ Applications and Value-Added Services
- ◆ Cognitive Radio
- ◆ Communication Protocols
- ◆ Complexity
- ◆ Computer and Network Security
- ◆ Cooperative Communications
- ◆ Data and Information Security
- ◆ Error Correcting Codes
- ◆ Fading/Equalization
- ◆ Green Technology
- ◆ Hardware and Software System Architecture
- ◆ High Performance Computing, Grid Computing, Cloud Computing
- ◆ Internet/Intranet Protocols
- ◆ Internet/Intranet Services
- ◆ Location Based Services
- ◆ Mobile and Portable Communications Systems
- ◆ Mobile Computing Systems
- ◆ Mobility Networks and Protocols
- ◆ Modulation/Signal Design
- ◆ Multi Antenna/User Systems
- ◆ Multimedia Services in Wireless Networks
- ◆ Network Protocol, QoS and Congestion Control
- ◆ Operations and Management
- ◆ Optical Communications
- ◆ Overlay and Peer-to-Peer Networks
- ◆ Self-Stabilization, Autonomic Computing
- ◆ Shared and Transactional Memory, Synchronization Protocols, Concurrent Programming
- ◆ Simulation/Analytical Evaluation of Communication Systems
- ◆ Source Coding/Data Compression
- ◆ Switching and Routing
- ◆ Synchronization
- ◆ Traffic Diagnosis
- ◆ Transmission and Access Systems
- ◆ Wired and Wireless Integration
- ◆ Wireless Network Design and Performance Evaluation

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 CN.

## Website and E-Mail

<http://www.scirp.org/journal/cn>

E-Mail: [cn@scirp.org](mailto:cn@scirp.org)