

ISSN: 1913-3715 Volume 16, Number 7, July 2023



# International Journal of Communications, Network and System Sciences



<https://www.scirp.org/journal/ijcns>

# JOURNAL EDITORIAL BOARD

ISSN 1913-3715 (Print) ISSN 1913-3723 (Online)

<https://www.scirp.org/journal/ijcns>

---

## Editorial Board

<b>Dr. Hamid Ali Abed Al-Asadi</b>	Basra University, Iraq
<b>Prof. Gufran Ahmad Ansari</b>	MIT World Peace University, India
<b>Prof. Sabri Arik</b>	Istanbul University, Türkiye
<b>Prof. Jalel Ben-Othman</b>	Université de Paris, France
<b>Prof. Zhenmin Chen</b>	Florida International University, USA
<b>Prof. Ko Chi Chung</b>	National University of Singapore, Singapore
<b>Prof. Daniel B. da Costa</b>	Federal University of Ceará, Brazil
<b>Dr. Franca Delmastro</b>	National Research Council, Italy
<b>Dr. Qiang Duan</b>	Pennsylvania State University Abington College, USA
<b>Prof. Md. B. El-Mashade</b>	Al-Azhar University, Egypt
<b>Prof. Kurt J. Engemann</b>	Iona College, USA
<b>Prof. Morteza Esmaeili</b>	Isfahan University of Technology, Iran
<b>Dr. Ravi Kumar Gangwar</b>	Indian Institute of Technology (Indian School of Mines) Dhanbad, India
<b>Prof. George Ghinea</b>	Brunel University, UK
<b>Prof. William A. Gruver</b>	Simon Fraser University, Canada
<b>Prof. Rushdi A. Hamamreh</b>	Al-Quds University, Palestine
<b>Dr. Jamil M. Hamodi</b>	Hodeidah University, Yemen
<b>Prof. Miao He</b>	Texas Tech University, USA
<b>Dr. Zhiyi Huang</b>	University of Otago, New Zealand
<b>Prof. Anca Daniela Ionita</b>	University Politehnica of Bucharest, Romania
<b>Prof. Hiroaki Ishii</b>	Kwansei Gakuin University, Japan
<b>Prof. N. Jeyanthi</b>	VIT University, India
<b>Dr. Chris Joslin</b>	Carleton University, Canada
<b>Prof. Vijayalakshmi Kakulapati</b>	Sreenidhi Institute of Science and Technology, India
<b>Prof. Jozef Kelemen</b>	Silesian University, Czech Republic
<b>Prof. Alexander M. Korsunsky</b>	Oxford University, UK
<b>Dr. Gururaj H L</b>	Vidyavardhaka College of Engineering, India
<b>Prof. Felipe Lara-Rosano</b>	National Autonomous University of Mexico, Mexico
<b>Prof. Shahram Latifi</b>	University of Nevada, USA
<b>Prof. Ghulam Ali Mallah</b>	Shah Abdul Latif University, Pakistan
<b>Dr. Nicola Mastronardi</b>	National Research Council, Italy
<b>Prof. Mohammad Abdul Matin</b>	North South University, Bangladesh
<b>Prof. Himanshu Monga</b>	Jawaharlal Nehru Government Engineering College, India
<b>Prof. Edward David Moreno</b>	Universidade Federal de Sergipe, Brazil
<b>Dr. Yuriy Polyakov</b>	New Jersey Institute of Technology, USA
<b>Prof. Jianbin Qiu</b>	Harbin Institute of Technology, China
<b>Prof. Kosai Raouf</b>	Joseph Fourier University, France
<b>Prof. Gerhard Ritter</b>	University of Florida, USA
<b>Dr. Ashok N. Rudrapatna</b>	Bell Labs, Alcatel-Lucent, USA
<b>Dr. Arif Sari</b>	Girne American University, Cyprus
<b>Prof. Innokentiy V. Semushin</b>	Ulyanovsk State University, Russia
<b>Dr. Maolin Tang</b>	Queensland University of Technology, Australia
<b>Prof. Lotfi A. Zadeh</b>	University of California, USA

# Table of Contents

**Volume 16    Number 7**

**July 2023**

**A Survey of the Machine Learning Models for Forest Fire Prediction and Detection**

P. Sobha, S. Latifi.....131

**A Survey of Techniques for Brain Anomaly Detection and Segmentation Using  
Machine Learning**

K. Narayanan, S. Latifi.....151

# 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, <https://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: [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 and reuse rights for the front matter of the journal:**

Copyright © 2023 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 © 2023 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.

### PRODUCTION INFORMATION

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

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



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

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

**IJCNS** is an international refereed journal dedicated to the latest advancement of communications, network and system science. 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.

## 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:

3G, 4G and 5G Technologies	MIMO and OFDM Technologies
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

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

<https://www.scirp.org/journal/ijcns>

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

## ***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?***

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



**Scientific  
Research  
Publishing**

**Website: <https://www.scirp.org>**

**Subscription: [sub@scirp.org](mailto:sub@scirp.org)**

**Advertisement: [service@scirp.org](mailto:service@scirp.org)**