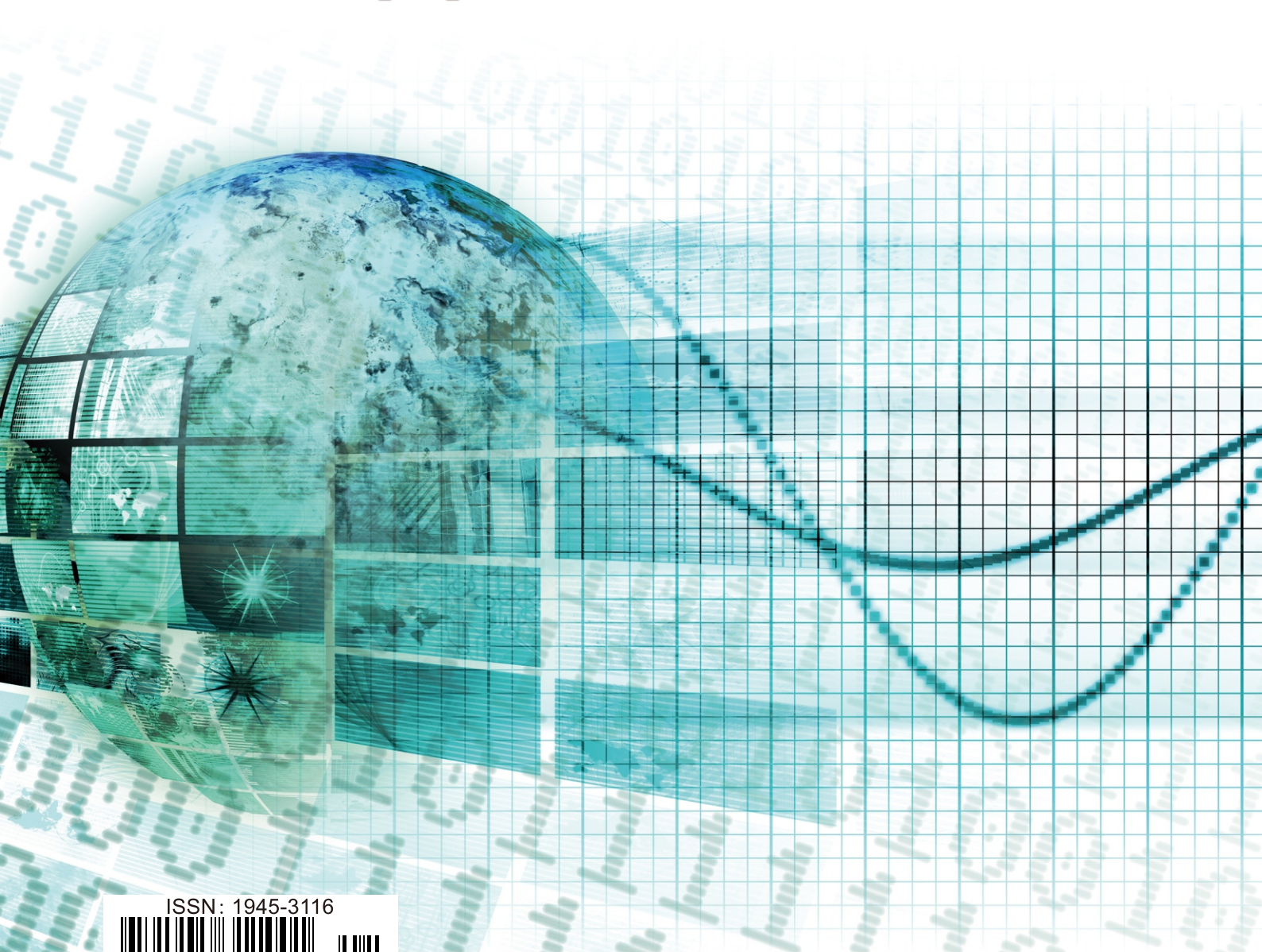


ISSN: 1945-3116

Volume 14, Number 1, January 2021



# Journal of Software Engineering and Applications



ISSN: 1945-3116



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

# Journal Editorial Board

ISSN 1945-3116 (print) ISSN 1945-3124 (online)

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

---

## Editor-in-Chief

**Prof. Yashwant K. Malaiya**

Colorado State University, USA

## Editorial Board

**Prof. Omar Abu Arqub**

Al-Balqa Applied University, Jordan

**Prof. Philip Achimugu**

Air Force Institute of Technology Kaduna, Nigeria

**Dr. Nicoletta Adamo-Villani**

Purdue University, USA

**Dr. Omar H. Alhazmi**

Taibah University, Saudi Arabia

**Prof. Kuang-Hua Chang**

The University of Oklahoma, USA

**Dr. Calvin Yu-Chian Chen**

China Medical University, China

**Dr. Kim-Kwang Raymond Choo**

University of South Australia, Australia

**Prof. Steven A. Demurjian**

The University of Connecticut, USA

**Prof. Agostino Forestiero**

National Research Council of Italy, Italy

**Dr. Kevin A. Gary**

Arizona State University, USA

**Dr. Phan H. Giang**

George Mason University, USA

**Dr. Zonghua Gu**

Zhejiang University, China

**Dr. Nabil Hameurlain**

University of Pau, France

**Dr. Wolfgang Herzner**

Austrian Institute of Technology, Austria

**Prof. Richard T. Hurley**

Trent University, Canada

**Prof. Mike Joy**

University of Warwick, UK

**Dr. Jacky Wai Keung**

City University of Hong Kong, China

**Dr. Mitsuhiro Kimura**

Hosei University, Japan

**Prof. Chang-Hwan Lee**

Dongguk University, South Korea

**Prof. Pascal Lorenz**

University of Haute Alsace, France

**Prof. Nageswara Rao Moparthy**

K L Deemed to be University, India

**Dr. Indrajit Saha**

National Institute of Technical Teachers' Training &  
Research, Kolkata, India

**Prof. Janche Sang**

Cleveland State University, USA

**Prof. Chintakindi Sanjay**

GITAM University, India

**Prof. Midthe V. Srinath**

STET Women's College, India

**Dr. Eliot Winer**

The Iowa State University, USA

**Dr. Yongfeng Yin**

School of Reliability and System Engineering, Beihang  
University (BUAA), China

**Prof. Xin Yuan**

Florida State University, USA

# Table of Contents

**Volume 14    Number 1**

**January 2021**

## **Linguistic Economy Applied to Programming Language Identifiers**

M. A. Dorin, S. Montenegro.....1

## **OSS Effort Expense Optimization Based on Wiener Process Model and GA**

K. Sugisaki, Y. Tamura, S. Yamada.....11

## **Development of Web Based Online Medicine Delivery System for COVID-19 Pandemic**

M. M. Khan, Md. R. Amin, A. A. Mamun, A. A. Sajib.....26

## **Cyclomatic Complexity-Based Encapsulation, Data Hiding, and Separation of Concerns**

C. W. Butler, T. J. McCabe.....44

# Journal of Software Engineering and Applications (JSEA)

## Journal Information

### SUBSCRIPTIONS

The *Journal of Software Engineering and Applications* (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 © 2021 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 © 2021 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](http://iss.whu.edu.cn)).

### PRODUCTION INFORMATION

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

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



# Call for Papers



## Journal of Software Engineering and Applications (JSEA)

ISSN 1945-3116 (print) ISSN 1945-3124 (online)

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

JSEA is a professional journal in the field of software engineering and application. The goal of this journal is to provide an international platform for engineers and academicians all over the world to promote, share, and discuss various new issues and development in the field of software engineering. It is an archival publication to disseminate the results of fundamental and applied research, especially those relevant to software engineering. This journal aims to encourage deeper understanding and greater effectiveness in the theory analysis and engineering application relevant to software engineering fields.

### Subject Coverage

All manuscripts must be prepared in English, and are subject to a rigorous and fair peer-review process. Accepted papers will immediately appear online followed by printed hard copy. The journal publishes original papers including but not limited to the following fields:

Automated Software Design and Synthesis  
Automated Software Specification  
Component-Based Software Engineering  
Computer-Supported Cooperative Work  
Formal Methods  
Knowledge Acquisition  
Object-Oriented Technology  
Patterns and Frameworks  
Process and Workflow Management  
Program Understanding Issues  
Programming Languages and Software Engineering  
Reflection and Metadata Approaches  
Reliability and Fault Tolerance

Requirements Engineering  
Reverse Engineering  
Software Architecture  
Software Design Methods  
Software Domain Modeling and Meta-Modeling  
Software Engineering Decision Support  
Software Engineering Education  
Software Maintenance and Evolution  
Software Process Modeling  
Software Quality  
Software Reuse  
Software Testing  
Tutoring, Help, Documentation Systems

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 JSEA.

### Notes for Prospective Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. 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/jsea>

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