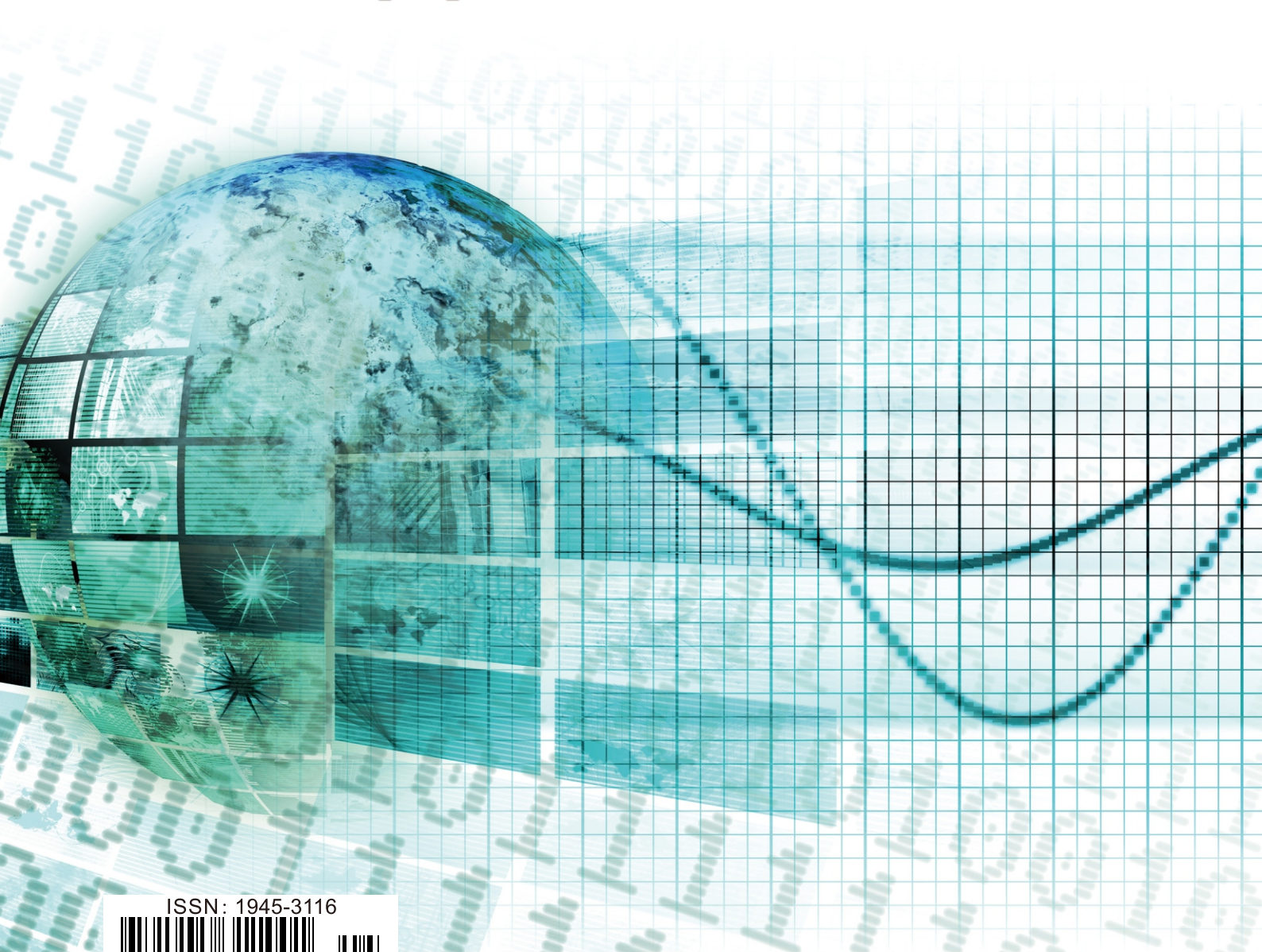


ISSN: 1945-3116

Volume 17, Number 5, May 2024



Journal of Software Engineering and Applications



ISSN: 1945-3116



9 771945 311001 05

<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

Prof. Abbas H. Hassin Alasadi

University of Basrah, Iraq

Dr. Omar H. Alhazmi

Taibah University, Saudi Arabia

Dr. Shahzad Ashraf

Hohai University, China

Prof. Charles W. Butler

Colorado State University, USA

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. Beata Czarnacka-Chrobot

Warsaw School of Economics, Poland

Dr. Christian Dawson

Loughborough University, UK

Prof. Steven A. Demurjian

The University of Connecticut, USA

Prof. Paolino Di Felice

University of L'Aquila, Italy

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

Prof. Yavuz Gunalay

Bahçeşehir University, Türkiye

Dr. Nabil Hameurlain

University of Pau, France

Prof. Shanmugasundaram Hariharan

Vardhaman College of Engineering, India

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

Dr. Mohamed Wiem Mkaouer

Rochester Institute of Technology, USA

Prof. Nageswara Rao Moparthy

K L Deemed to be University, India

Dr. Indrajit Saha

National Institute of Technical Teachers' Training & Research, 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 17 Number 5

May 2024

An Improved Enterprise Resource Planning System Using Machine Learning Techniques

A. Y. Zakaria, E. Abdelbadea, A. Raslan, T. Ali, M. Gheith, A.-S. Khater, E. A. Amin 203

Dynamic Signature Verification Using Pattern Recognition

E. N. Ekwonwune, D. A. Ekekwe, C. I. Ubochi, H. C. Oleribe 214

A Proposed Approach for Measuring Maturity Level of Software Delivery

O. H. Mansour, A. Raslan, N. Ramadan 228

Building Custom Spreadsheet Functions with Python: End-User Software Engineering Approach

T. B. Elserwy, A. T. N. E.-D. Raslan, T. Ali, M. H. Gheith 246

Enhanced Memory-Safe Linux Security Modules (eLSMs) for Improving Security of Docker Containers for Data Centers

J. M. Delbugio, V. K. Madiseti 259

ERAD: Enhanced Ransomware Attack Defense System for Healthcare Organizations

X. Y. Li, V. K. Madiseti 270

Analysis of Secured Cloud Data Storage Model for Information

E. N. Ekwonwune, U. C. Chigozie, D. A. Ekekwe, G. C. Nwankwo 297

Sher: A Secure Broker for DevSecOps and CI/CD Workflows

P. Kumar, V. K. Madiseti 321

Security Vulnerability Analyses of Large Language Models (LLMs) through Extension of the Common Vulnerability Scoring System (CVSS) Framework

A. Biju, V. Ramesh, V. K. Madiseti 340

A Comparative Analysis of Cybersecurity Threat Taxonomies for Healthcare Organizations

M. Jaikanth, V. K. Madiseti 359

Ad Blockers & Online Privacy: A Comparative Analysis of Privacy Enhancing Technologies (PET)

S. M. Madikeri, V. K. Madiseti 378

A Framework for Cybersecurity Alert Distribution and Response Network (ADRIAN)

A. Shankar, V. Madiseti 396

**Evaluating Privacy Leakage and Memorization Attacks on
Large Language Models (LLMs) in Generative AI Applications**

H. Aditya, S. Chawla, G. Dhingra, P. Rai, S. Sood, T. Singh, Z. M. Wase, A. Bahga, V. K. Madiseti 421

Design & Test of an Advanced Web Security Analysis Tool (AWSAT)

M. S. P. Manikandaswamy, V. Madiseti 448

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

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: sub@scirp.org

COPYRIGHT

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

Copyright © 2024 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 © 2024 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: 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. Generally, accepted papers will appear online within 3 weeks 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

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



Website: <https://www.scirp.org>
Subscription: sub@scirp.org
Advertisement: service@scirp.org