

ISSN: 2327-7211 Volume 12, Number 3, August 2024



# Journal of Data Analysis and Information Processing



ISSN: 2327-7211



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

# Journal Editorial Board

ISSN: 2327-7211 (Print) ISSN: 2327-7203 (Online)

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

---

## Editor-in-Chief

**Prof. Feng Shi** Huazhong Agricultural University, China

## Editorial Board

**Dr. Haiyan Bai** University of Central Florida, USA  
**Prof. Shuoben Bi** Nanjing University of Information Science and Technology, China  
**Prof. Halil Ceylan** Iowa State University, USA  
**Prof. Gang-Len Chang** The University of Maryland, USA  
**Dr. Simin Ghavifekr** University of Malaya, Malaysia  
**Prof. Abdolreza Hatamlou** Islamic Azad University, Iran  
**Prof. Xiaoli Li** Beijing Normal University, China  
**Dr. Caimei Lu** Drexel University, USA  
**Prof. Mehmet Mendes** Canakkale Onsekiz Mart University, Türkiye  
**Dr. Loc Nguyen** Sunflower Soft Company, Vietnam  
**Prof. Rhonda K. Roby** University of North Texas, USA  
**Dr. Yilun Shang** Department of Computer and Information Sciences, Northumbria University, UK  
**Prof. Wan Tang** University of Rochester, USA  
**Dr. Chunyan Wang** Pinterest Inc., USA  
**Prof. Fu-Kwun Wang** National Taiwan University of Science and Technology, Chinese Taipei  
**Prof. Jie Yang** Stony Brook University, USA  
**Dr. Ehsan Zamanzade** University of Isfahan, Iran

# Table of Contents

**Volume 12    Number 3**

**August 2024**

<b>Spatial Heterogeneity Modeling Using Machine Learning Based on a Hybrid of Random Forest and Convolutional Neural Network (CNN)</b>	
A. K. Barry, A. W. Gichuhi, L. Nderu .....	319
<b>A Novel Approach for Developing a Linear Regression Model within Logistic Cluster Using Scikit-Learn</b>	
N. Ambrose, G. I. O. Aimufua, C. D. Nyap .....	348
<b>The Windy City’s Dark Side: A Statistical Exploration of Crime in the City of Chicago</b>	
C. Odooh, S. Olisah, J. Onwuchekwa, O. Owolabi, S. S. Yufenyuy, O. Aderibigbe, E. Obunadike, O. Efijemue, S. Akintayo, S. Edozie .....	370
<b>Comparative Analysis of Machine Learning Models for Customer Churn Prediction in the U.S. Banking and Financial Services: Economic Impact and Industry-Specific Insights</b>	
O. S. Owolabi, P. C. Uche, N. T. Adeniken, O. Efijemue, S. Attakorah, O. G. Emi-Johnson, E. Hinnah .....	388
<b>A Multilayer Perceptron Artificial Neural Network Study of Fatal Road Traffic Crashes</b>	
E. Pearson III, A. Kassu, L. Tembo, O. Adegoke .....	419
<b>Exploring the Forest Cover Changes and Influential Factors of Dongsithouane National Production Forest Area, Savannakhet Province, Lao PDR</b>	
S. Douangphachanh, C. Phompila, D. Chakma, I. Chanthavong, M. Douangphachanh, P. Doydee, P. X. Zhao, Y. C. Yu .....	432
<b>A Machine Learning Classification Model for Detecting Prediabetes</b>	
A. K. M. R. Bashar, M. Goudarzi, C. P. Tsokos .....	462
<b>Exploration of the Impact Mechanism of Government Credibility Based on Variable Screening Method</b>	
J. J. Wu, Y. X. Ma, H. L. Zou, C. Zhang, R. Yan .....	479

# Journal of Data Analysis and Information Processing (JDAIP)

## Journal Information

### SUBSCRIPTIONS

The *Journal of Data Analysis and Information Processing* (Online at Scientific Research Publishing, <https://www.scirp.org/>) is published quarterly by Scientific Research Publishing, Inc., USA.

#### Subscription rates:

Print: \$39 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 © 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:

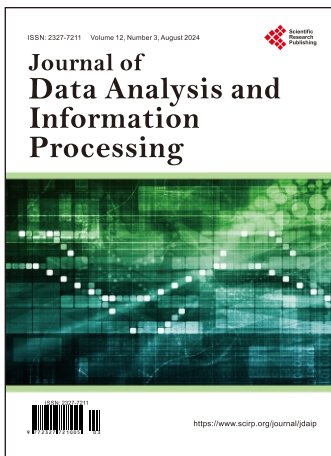
E-mail: [jdaip@scirp.org](mailto:jdaip@scirp.org)

# Call for Papers

## Journal of Data Analysis and Information Processing

ISSN 2327-7211 (Print) ISSN 2327-7203 (Online)

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



*Journal of Data Analysis and Information Processing (JDAIP)* is an international journal dedicated to the latest advancement of data analysis and information processing methods. The goal of this journal is to provide a platform for scientists and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of data analysis and information processing.

### Editor-in-Chief

**Prof. Feng Shi**

Huazhong Agricultural University, China

### Editorial Board

**Dr. Haiyan Bai**  
**Prof. Shuoben Bi**  
**Prof. Halil Ceylan**  
**Prof. Gang-Len Chang**  
**Dr. Simin Ghavifekr**  
**Prof. Abdolreza Hatamlou**

**Prof. Xiaoli Li**  
**Dr. Caimei Lu**  
**Prof. Mehmet Mendes**  
**Dr. Loc Nguyen**  
**Prof. Rhonda K. Roby**  
**Dr. Yilun Shang**

**Prof. Wan Tang**  
**Dr. Chunyan Wang**  
**Prof. Fu-Kwun Wang**  
**Prof. Jie Yang**  
**Dr. Ehsan Zamanzade**

### 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:

- Application of Technology in Policy and Decision Making
- Application of Technology in Teaching and Learning Process
- Artificial Intelligence
- Artificial Neural Networks
- Big Data Analytic
- Business Intelligence
- Computational Intelligence
- Data Mining
- Data Modeling
- Deep Learning
- Digital Signal Processing
- Dimension Reducing
- Empirical Mode Decomposition
- Fourier Analysis
- Graph Mining
- Image Processing, Video Processing
- Information Extraction
- Information Hiding
- Information Retrieval
- Information Theory
- Knowledge Discovery
- Machine Learning
- Multivariate Data Analysis, Matrix Analysis
- Pattern Recognition
- Semantic Technology
- Social Network Mining
- Spatial and Temporal Data Analysis
- Statistics
- Statistics and Applied Probability
- Stochastic Process
- Stream Mining
- Time Series Analysis
- Wavelet Analysis

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 JDAIP.

### 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/jdaip> Email: [jdaip@scirp.org](mailto:jdaip@scirp.org)

