

Journal of Advanced Computational Intelligence and Intelligent Informatics

Vol. 29 No.4
Jul. 2025

Indexed in ESCI, SCOPUS,
COMPENDEX (Ei), DOAJ

In Cooperation with

International Fuzzy Systems Association (IFSA),

Japan Society for Fuzzy Theory and Intelligent Informatics (SOFT),

Brazilian Society of Automatics (SBA),

The Society of Instrument and Control Engineers (SICE)

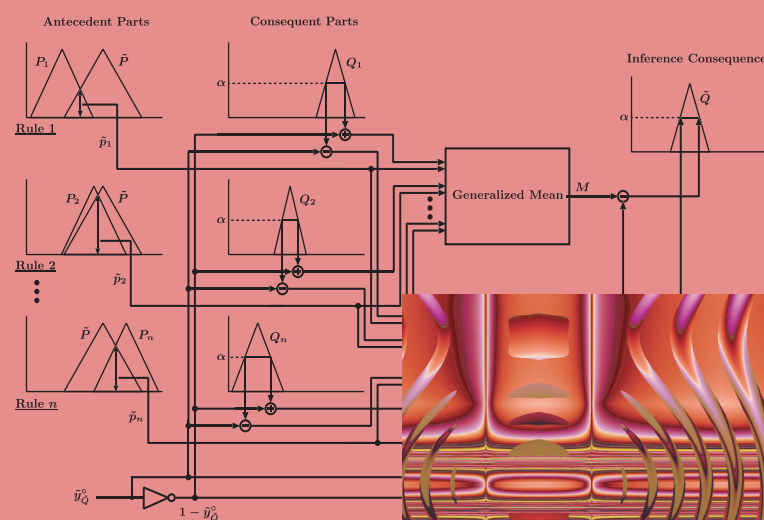
John von Neumann Computer Society (NJSZT),

Vietnamese Fuzzy Systems Society (VFSS),

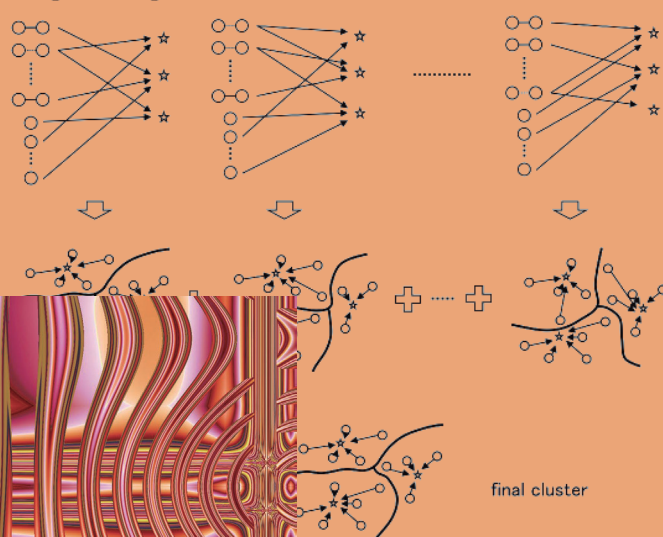
Fuzzy Systems and Intelligent Technologies Research Society of Thailand (FIRST),

Korean Institute of Intelligent Systems (KIIS), and

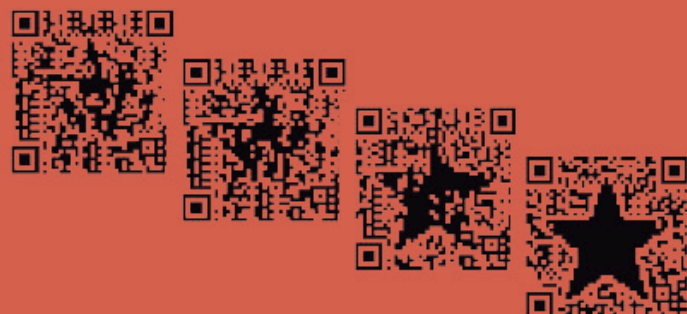
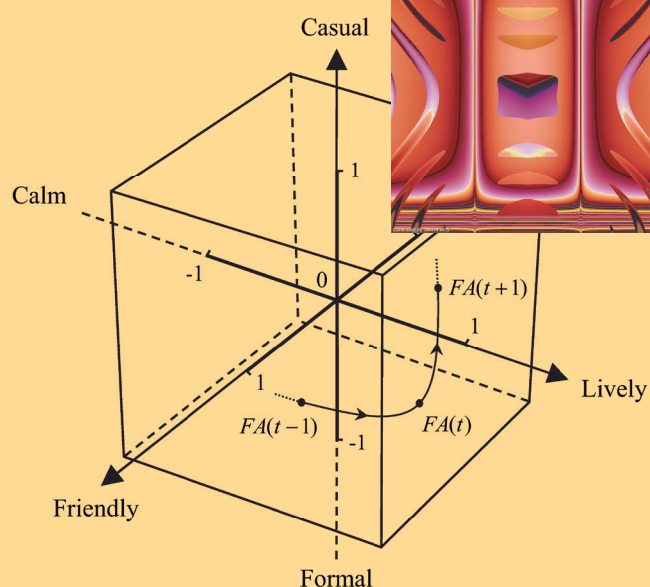
Taiwanese Association for Artificial Intelligence (TAAI)



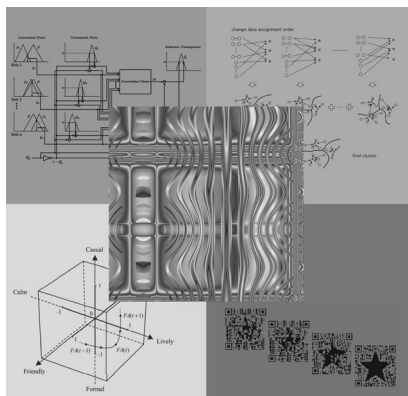
change data assignment order



final cluster



Vol.29 No.4
Jul. 2025



This journal is indexed in:

Emerging Science Citation Index (ESCI);
Scopus; Compendex (Ei); DBLP;
Ulrichsweb™ Global Serials Directory;
Genamics JournalSeek; Open J-Gate; J-Global;
CiNii Articles; CNKI; Cabell's Directory;
DOAJ

Special Advisors:

Prof. Jinhua She
(Tokyo University of Technology)
Prof. Hongbin Ma
(Beijing Institute of Technology)
Prof. Bin Xin
(Beijing Institute of Technology)
Prof. Yoshiyuki Yabuuchi
(Shimonoseki City University)
Prof. Xiuwu Zhang
(Huaqiao University)

Publishing Staff:

Managing Editor	Kunihiko Uchida
Art Director	Yuji Isa
Publisher	Y. Matsumoto

Published bimonthly by

Fuji Technology Press Ltd.
Ichigo Otemachi North Bldg. 2F
1-15-7 Uchikanda, Chiyoda-ku,
Tokyo 101-0047, Japan
Tel: +81-3-5577-3851
Fax: +81-3-5577-3861
E-mail: jaciii@fujipress.jp
URL: <https://www.fujipress.jp/jaciii/>

Copyright © 2025 Fuji Technology Press Ltd.



Articles in this journal are Open Access and published under the terms of the Creative Commons Attribution-NoDerivatives 4.0 International License (<http://creativecommons.org/licenses/by-nd/4.0/>).

Contents

Regular Papers:

Research Papers:

- **An Intrusion Detection Model Based on AFSA-SVM for Petroleum Multi-Channel Industrial Control Network Communication 703**
Bo Yang, Yang Xiao, Xinzhang Wang, Zehao Cui,
and Cheng Peng
- **Application of Multi-Strategy Enhanced Sparrow Search Algorithm in Leak Source Localization . . . 711**
Zeng-Qiang Chen, Shao-Kun Zheng, Cheng-Gong Chen,
and Yi-Wen Zhao
- **q -Divergence-Based Fuzzy c -Linear Gaussian State Space Model 721**
Tomoki Nomura and Yuchi Kanzawa
- **Selection Prediction Models Considering Context Effects 734**
Wenhao Zhang and Takashi Hasuike
- **Agent-Based Modeling of Cultural Integration: A Post-Merger Framework for State-Owned Enterprises. 743**
Jing Wang, Akinobu Sakata, and Shingo Takahashi
- **BrainLM: Enhancing Brain Encoding and Decoding Capabilities with Applications in Multilingual Learning 754**
Ying Luo and Ichiro Kobayashi
- **Fall Detection Based on Inverted-Pendulum Model as Training Data for Monitoring Elderly People Living Solitarily Using Depth Camera 768**
Eisuke Tomita and Akinori Sekiguchi
- **Effective Configuration of Reconfigurable Single Actuator Wave Mechanism Toward Autonomous Cable Laying 777**
Yuki Sadasue, Fuga Inagaki, and Masami Iwase

Cover Pictures:

Upper left:

The process of fuzzy inference based on α -cuts and generalized mean.
(Asso. Prof. Kiyohiko Uehara, Ibaraki University)

Upper right:

The process of boosting based cluster ensemble.
(Dr. Masayuki Okabe, Prefectural University of Hiroshima)

Center:

2D CG image drawn with “SBART,” a simulated breeding tool.
(Prof. Tatsuo Unemi, Soka University)

Lower left:

Fuzzy atmosphere represented in 3D fuzzy cubic space.
(Dr. Zhen-Tao Liu, China University of Geosciences, China)

Lower right:

QR code decoration using module-wise non systematic coding.
(Asso. Prof. Satoshi Ono, Kagoshima University)

Printed copy: one year subscription
Institutional rate JPY 138,000

- **Combining Knowledge Graph and Artificial Intelligence to Conduct Financial Report Quality Detection Research 787**
Lan Luo
- **Design of a Human-Centric Robotic System for User Support Based on Gaze Information. 796**
Yuka Sone and Jinseok Woo
- **Empirical Analysis of Ticket-Sales Strategies in the Live Entertainment Market 803**
Katsuki Motodaka and Takashi Hasuiki
- **Method of Entrepreneurship Program Education for College Students Based on Deep Learning 811**
Shuangxi Wang
- **Prediction of Rate of Penetration in Drilling Process with Bayesian-Optimized Gaussian Process Regression. 820**
Kanghui Zeng, Min Wu, Chengda Lu, Xiao Yang, and Zhejiaqi Ma
- **Tourism Information Analysis of SNS Data Using Text Mining. 829**
Yoshiyuki Matsumoto
- **Infrared and Visible Image Fusion with Overlapped Window Transformer 838**
Xingwang Liu, Bemnet Wondimagegnehu Mersha, Kaoru Hirota, and Yaping Dai
- **An Analysis of Viewing Intentions for Promotional Videos Using Fuzzy c-Means Clustering: A Comparative Study Between Japan and Singapore 847**
Naruki Shirahama, Naofumi Nakaya, Kenji Moriya, Kazuhiro Koshi, Keiji Matsumoto, and Satoshi Watanabe
- **Asynchronous and Flexible Federated Learning for COVID-19 Detection from Chest X-Ray Images . . . 857**
Mohamed Hedi Elhajje, Salwa Said, Nouha Arfaoui, and Ridha Ejali
- **Russian Natural Language Processing Based on the GNN-BERT-AE Model 868**
Aynur Saydu and Hui Huang

□ Intelligent Transformation Empowers the New Quality Productivity of Enterprises: Theoretical Mechanism and Empirical Evidence	880
Xiaoyang Guo, Xiuwu Zhang, and Yao Gui	
□ Can Enterprise Intelligent Transformation Resolve the “Productivity Paradox?” Evidence from Chinese Listed Companies	894
Jingyi Yang, Xiuwu Zhang, and Yarui Deng	
□ Relationship Between Reemployment Intention, Job Performance, and Job Satisfaction Among College Interns	910
Yun-Hsi Chang	
Development Report:	
□ Correlation Between Abacus Skills and Mathematical Abilities in Students' Scores	916
Wen-Tsung Lai and Tsung-Kuo Tien-Liu	
Research Papers:	
□ Dynamic Sampling and Control for Automated Road Pre-Marking Robot	921
Meng Wang, Shiyun Zhu, Juexuan Chen, Yutong Lu, Lang Zhu, and Xue Lv	
□ Single Neuron PID-Based Heave Compensation Control for Drill String System in Oceanic Drilling .	931
Jing Ren, Chengda Lu, Chenxuan Wang, Zhejiaqi Ma, Chao Gan, Fulong Ning, and Min Wu	
□ Small Object Detection Algorithm Based on Improved Attention Mechanism and Feature Fusion of YOLOv8	941
Mingxing Fang, Xinyu Rui, Hongyu Cheng, Xinke Liu, Jinhua She, Youwu Du, and Haoran Tan	
□ Consensus Knowledge-Guided Semantic Enhanced Interaction for Image-Text Retrieval	956
Hongbin Wang, Hui Wang, and Fan Li	
□ Integrating Fuzzy Clustering and Profile Analysis on Retrospective Measurement for Project-Based Learning	968
Yuan-Horng Lin and Chiing-Chang Chen	

Development Report:

- **The Development of Abacus Education and its
Influence on Mathematical Ability from Teachers'
Perspectives 977**

Wen-Tsung Lai and Tsung-Kuo Tien-Liu