

Special Issue on Fuzzy Systems Toward Human-Inspired Computational Intelligence in Complex Systems
(Deadline for Submissions 31 October 2023)

1. AIMS AND SCOPE

Fuzzy systems are one of the most significant advances in computational intelligence and have a wide range of applications in control and system modeling for many data science scenarios, as they consist of human reasoning and decision models. Simultaneously, one of the most challenging issues for such complex systems is to effectively handle real-world uncertainties that cannot be eliminated. These uncertainties include various types of information that are incomplete, imprecise, and vague. In the special issue on computational intelligence and complex systems a plethora of approaches is presented on how to apply computation intelligence in modeling, control, decision support, and optimization of complex problems.

Human-inspired computing is the intelligence computing model enlightened by human brain intelligence and biological processes. As the research on fields of human-inspired computational intelligence, granular computing and three-way decisions have been applied in data mining, cognitive analytics, machine learning, artificial intelligence, and many other areas. In addition, we need collaboration with areas such as Hybrid Human-Artificial Intelligence, cognitive and social sciences, philosophy & ethics, complex systems, and others. Consequently, we are considering human inspired point of views to design, model and test new advances in AI-Generated Content (AIGC) research areas: artificial intelligence, neuroscience, humanities and arts now.

The purpose of this special issue aims to gather a series of outstanding studies on fuzzy systems toward the field of human-inspired computational intelligence. This will provide a snapshot of the latest advances in the contribution of the urgent demand for research on high-level computational intelligence and its complex systems.

2. TOPICS COVERED

The list of possible topics includes, but is not limited to:

- Three-way decision and granular fuzzy modeling
- Models for complex fuzzy scenarios
- Fuzzy rule-based intelligent computing
- Fuzzy reasoning with human brain intelligence
- Human-centric computing in fuzzy systems
- Fuzzy models for AI-Generated Content
- Causal emergence and chaos in Complex Systems
- Fuzzy applications in hybrid Human-Artificial Intelligence for social computing/behavior modeling
- Fuzzy methods-based genetic algorithms/expert systems

3. SUBMISSION GUIDELINES

All authors should read 'Information for Authors' before submitting a manuscript at <https://cis.ieee.org/publications/t-fuzzy-systems/tfs-information-for-authors>

Submissions should be through the IEEE TFS journal website <http://mc.manuscriptcentral.com/tfs-ieee>.

Submissions should also be in the **correct format** <https://journals.ieeeauthorcenter.ieee.org/create-your-ieee-journal-article/authoring-tools-and-templates/ieee-article-templates/templates-for-transactions/>

It is essential that your manuscript is identified as a Special Issue contribution:

- Ensure you choose 'Special Issue' when submitting.
- A cover letter **must** be included which includes the title 'Human-Inspired Computational Intelligence in Complex Systems'.

4. IMPORTANT DATES

- Submission Deadline: 31 October 2023
- First Review Decisions: January 2024 (for guidance only)
- Expected publication date: April 2024 (Tentative)

5. GUEST EDITORS

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Fuchun Sun is a Professor of Computer Science and Technology Department, Tsinghua University. He is also an IEEE Fellow, a winner of National Outstanding Youth Fund. He is currently a member of the Academic Committee at Tsinghua University. He is also an editor-in-chief of the international publication Cognitive Computing and Systems, an associate editor of the Trans. on Fuzzy Systems, IEEE Trans. On Systems, Man and Cybernetics: Systems, Mechatronics and International Journal of Control, Automation, and Systems (IJCAS), etc. His research interests contain neuro-fuzzy modeling, and control and filtering of nonlinear systems, etc. He has published more than 800 papers. His more information can be obtained at <https://www.cs.tsinghua.edu.cn/csen/info/1180/4035.htm>.

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Guoyin Wang is a vice-principal of Chongqing University of Posts and Telecommunications, China. His research interests include rough set, granular computing, data mining, cognitive computing, big data and artificial intelligence. He is also a fellow of IRSS/CAAI/CCF. He is the editor-in-chief of more than 10 periodicals such as Int. J. of Approximate Reasoning, Trans. on Rough Sets, Chinese journal of computers and Journal of Intelligent Systems. He has published 23 academic monographs (including editors), published more than 300 academic papers in international journals and conferences and they have been cited more than 10,000 times. He was selected a Chinese highly cited scholar from 2014 to 2019. He was a Chair of more than 20 international conferences. His more information can be obtained at https://faculty.cqupt.edu.cn/wanggy/zh_CN/index.htm.

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Qingfu Zhang is a Chair Professor of Computational Intelligence with the Department of Computer Science, City University of Hong Kong. He is an IEEE Fellow. His main research interests include evolutionary computation, optimization, neural networks, machine learning and their applications. His multi-objective optimization evolutionary algorithm based on decomposition (MOEA/D) is one of the most researched and used algorithms in the field of evolutionary computation and many applications. His Google Scholar h-index is 73 with over 32,700 citations. He has been a Highly Cited Researcher for six years. His more information can be obtained at <https://www.cs.cityu.edu.hk/~qzhan7/index.html>.

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Chunwei Tian is currently an Associate Professor with the School of Software, Northwestern Polytechnical University, China, in July, 2021. Also, he is a member of National Engineering Laboratory for Integrated Aerospace Ground-Ocean Big Data Application Technology. He received his Ph.D degree in Computer Application Technique at Harbin Institute of Technology in Jan, 2021. He was a Research Fellow at City University of Hong Kong, China. He has become a High-level Talent of Jiangsu Province and a Young Sci-tech Talent of Suzhou Association for Science and Technology in 2022. He becomes a world's Top 2% Scientist in 2022. He has obtained an excellent doctoral dissertation of Heilongjiang Artificial Intelligence Society and Harbin Institute of Technology in 2022, and Shenzhen CCF in 2021. His research interests include image restoration and deep learning. He has published over 50 papers in academic journals and conferences, including IEEE TNNLS, IEEE TMM, IEEE TSMC, Pattern Recognition, Neural Networks, Information Sciences and ICASSP, etc. He has four ESI highly-cited papers, one ESI hot paper, three homepage papers of the Neural Networks, one homepage paper of the TMM, one excellent paper of the CAAI Transactions on Intelligence Technology in 2020. Also, his three codes are rated as the contribution codes of the GitHub in 2020. His two paper techniques are integrated on the iHub and Profillic, respectively. He has obtained an open science excellent author program from the Wiley, excellent papers of Shenzhen and Taicang, respectively. His two paper codes are collected by the OSCS. His one paper technique is used by the MetronMind. His two papers have become benchmarks of image super-resolution in 2022. Besides, he is an associate editor/young editor of the CAAI Transactions on Intelligence Technology, the Defense Technology, the Intelligent Data Analysis, the Mathematics, the Mathematical Biosciences and Engineering, the Electronics, the Journal of Electrical and Electronic Engineering, the International Journal of Image and Graphics, the Journal of Artificial Intelligence and Technology, the Data Science and Management, the Ordnance Industry

Automation and Frontiers in Robotics and AI, etc. He is also a PC chair of some international conferences, i.e., ICCBDAl and MLCCIM, etc. Additionally, he has hosted more than ten projects. His more information can be obtained at <https://helloxiaotian.github.io/>.