

Special Issue on Fuzzy Systems Toward Human-Explainable Artificial Intelligence and Their Applications
(Deadline for Submissions 1 February 2021)

1. AIMS AND SCOPE

Fuzzy systems are one of the most significant advances in computational intelligence, and have performed excellent fuzzy modelling capabilities in many data science scenarios, as they consist of human reasoning and decision models. With the cooperation between systems and algorithms based on fuzzy rules, it helps to understand further artificial intelligence, especially accuracy and interpretability in machine learning, to obtain human-explainable artificial intelligence models.

At present, the goal of artificial intelligence-based models is not only to achieve the highest possible accuracy, but also to be interpretable to its users and developers. In this sense, fuzzy systems retain the original nature of revealable intelligibility and improve their modelling capabilities, leading an advantage over other approaches in processing human-explainable artificial intelligence.

The purpose of this special issue aims to gather a series of outstanding studies on fuzzy systems toward the field of artificial intelligence explainable by human reasonings. This will provide a snapshot of the latest advances in the contribution of the emerging field of human-explainable artificial intelligence.

2. TOPICS COVERED

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

- Fuzzy logic and systems to support interpreting and explaining deep neural networks.
- Fuzzy modelling for management of information in a more human-oriented style, such as human-centric modelling and decision making.
- Fuzzy systems for the acquisition of uncertainties and vulnerabilities of artificial intelligence.
- Fuzzy modelling and reasoning for the recognition of human cognitive processes.
- Theoretical development of fuzzy-in-the-loop artificial intelligence.
- Applications of fuzzy-in-the-loop artificial intelligence.

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 'Fuzzy Systems Toward Human-Explainable Artificial Intelligence and Their Applications'.

4. IMPORTANT DATES

- Submission Deadline: **1 February 2021**
- First Review Decisions: January 2021 (for guidance only)
- Expected publication date: April 2021 (Tentative)

5. GUEST EDITORS

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Zehong Cao is a Lecturer (a.k.a. Assistant Professor) with Discipline of Information and Communication Technology (ICT), University of Tasmania (UTAS), Hobart, Australia, and an Adjust Fellow with Faculty of Engineering and Information Technology, University of Technology Sydney (UTS), Australia. He received the dual PhD degree in Information Technology from UTS, and Electrical and Control Engineering from National Chiao Tung University (NCTU) in Taiwan. He serves as the Associate Editor of Neurocomputing (2020-), Nature: Scientific Data (2020-), Journal of Intelligent and Fuzzy Systems (2019-) and IEEE Access (2018-2019), and the Guest Editor of IEEE Transactions on Industrial Informatics, IEEE Transactions on Emerging Topics in Computational Intelligence (2019), Swarm and Evolutionary Computation (2019), and Neurocomputing (2018). He had 40+ papers published in well-known conferences, such as AAMAS, IJCNN, IEEE-FUZZY, and top-tier journals, such as IEEE TFS, IEEE TNNLS, IEEE TCYB, IEEE TSMC-S, IEEE TBME, IEEE TCDS, IEEE TII, IEEE TIA, IEEE IoT, and ACM TOMM, INS, NC, IJNS, NeuroImage and Scientific Data, of which 2 ESI highly cited papers. He was awarded UTS Centre for Artificial Intelligence Best Paper Award (2017), UTS Faculty of Engineering and IT Publication Award (2017), UTS President Scholarship (2015), and NCTU & Songshanhu Scholarship (2013). He is currently focusing on the capacity of the “Human-In-The-Loop” machine learning and applications. The personal web page can be found here: <https://czh513.github.io>

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Chin-Teng Lin received the BS degree from National Chiao-Tung University (NCTU), Taiwan in 1986, and the Master and PhD degree in electrical engineering from Purdue University, USA in 1989 and 1992, respectively. He is currently the Distinguished Professor of Faculty of Engineering and Information Technology, and Co-Director of Center for Artificial Intelligence, University of Technology Sydney, Australia. He is also invited as Honorary Chair Professor of Electrical and Computer Engineering, NCTU, International Faculty of University of California at San-Diego (UCSD), and Honorary Professorship of University of Nottingham. Dr. Lin was elevated to be an IEEE Fellow for his contributions to biologically inspired information systems in 2005, and was elevated International Fuzzy Systems Association (IFSA) Fellow in 2012. Dr. Lin received the IEEE Fuzzy Systems Pioneer Awards in 2017. He served as the Editor-in-Chief of IEEE Transactions on Fuzzy Systems from 2011 to 2016. He also served on the Board of Governors at IEEE Circuits and Systems (CAS) Society in 2005-2008, IEEE Systems, Man, Cybernetics (SMC) Society in 2003-2005, IEEE Computational Intelligence Society in 2008-2010, and Chair of IEEE Taipei Section in 2009-2010. Dr. Lin was the Distinguished Lecturer of IEEE CAS Society from 2003 to 2005 and CIS Society from 2015-2017. He serves as the Chair of IEEE CIS Distinguished Lecturer Program Committee in 2018~2019. He served as the Deputy Editor-in-Chief of IEEE Transactions on Circuits and Systems-II in 2006-2008. Dr. Lin was the Program Chair of IEEE International Conference on Systems, Man, and Cybernetics in 2005 and General Chair of 2011 IEEE International Conference on Fuzzy Systems. Dr. Lin is the coauthor of Neural Fuzzy Systems (Prentice-Hall), and the author of Neural Fuzzy Control Systems with Structure and Parameter Learning (World Scientific). He has published more than 300 journal papers (Total Citation: 22,126, H-index: 66, i10-index: 279) in the areas of neural networks, fuzzy systems, brain-computer interface, multimedia information processing, and cognitive neuro-engineering, including about 120 IEEE journal papers. The personal web page can be found here: <https://www.uts.edu.au/staff/chin-teng.lin>.

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Yong Deng received the PhD degree in precise instrumentation from Shanghai Jiao Tong University, Shanghai, China, in 2003. From 2005 to 2011, he was an Associate Professor with the Department of Instrument Science and Technology, Shanghai Jiao Tong University. Since 2010, he has been a Professor with the School of Computer and Information Science, Southwest University, Chongqing, China. Since 2012, he has also been a Visiting Professor with Vanderbilt University, Nashville, TN, USA. Since 2016, he has been a Professor with the School of Electronic and Information Engineering, Xi'an Jiaotong University, Xi'an, China. Since 2017, he has also been the Full Professor with the Institute of Fundamental and Frontier Science, University of Electronic Science and Technology of China, Chengdu, China. Since 2017, he has also been the Adjunct Professor with the Medical Center, Vanderbilt University. He has published more than 100 articles in refereed journals. His research interests include evidence theory, decision making, information fusion, and complex system modelling. He served as the program member for many conferences such as the International Conference on Belief Functions. He served as many editorial board members such as the Editorial Board Member of Applied Intelligence and the Journal of Organizational and End User Computing. He served as many guest editor such as the International Journal of Approximate Reasoning and Mathematical Problems in Engineering and Sustainability. He has received numerous honours and awards, including the Elsevier Highly Cited Scientist in China, since 2014. The personal web page can be found here: <https://scholar.google.com/citations?user=8voeILsAAAAJ&hl=en>

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