

Call for Cognitive Computation Special Issue Papers:

Cognitive Analysis for Humans and AI

Guest Editors:

Rui Mao✉, Nanyang Technological University, Singapore
Qian Liu, Nanyang Technological University, Singapore
Xiao Li, University of Aberdeen, United Kingdom
Erik Cambria, Nanyang Technological University, Singapore
Amir Hussain, Edinburgh Napier University, United Kingdom

Corresponding Email: rui.mao@ntu.edu.sg

Background:

The evolution of AI has profoundly shaped cognitive analysis, with a myriad of computational techniques emerging to discover cognitive patterns. Tools for sentiment, personality, psychology and concept analysis (e.g., SenticNet and MetaPro), and more have become pivotal in examining cognitive dynamics across diverse domains. The advent of cutting-edge generative AI techniques (e.g., ChatGPT and Stable Diffusion) has further showcased human-like capabilities in language and vision processing tasks. The understanding of these AI techniques not only empowers humans to optimize AI usage but also guards against potential risks associated with the integration of advanced technologies into various facets of our lives. While the landscape is adorned with numerous cognitive computation tools, the exploration of how to leverage these tools optimally and ethically for yielding profound insights in diverse domains and across varied research subjects remains an underexplored frontier.

This Special Issue is motivated by illuminating this critical gap and fostering collaboration between the AI and cognitive science communities. By soliciting high-quality research contributions, we seek to delve into the untapped potential of state-of-the-art cognitive computational methods. Our aspiration is to inspire the innovative applications of computational methods that generate significant cognitive findings, enriching both human understanding and the capabilities of future trustworthy AI systems.

Topics:

- § Cognitive analysis for healthcare, humanity and social science
- § Cognitive analysis for business, management, economics, finance and real-world applications
- § Human behavioral analysis
- § Multi-modal, multi-lingual and real-time Cognitive Analysis
- § Concept analysis
- § Psycholinguistic analysis
- § Analyzing human perception towards AI
- § Cognitive analysis of Generative AI and Large Language Models
- § AI behavioral analysis
- § Affective computation
- § Ethical (including interpretable, trustworthy, equitable and energy-efficient) analysis with cognitive computational methods

Highlights:

The Special Issue will select papers that utilize computational methods to deliver significant cognitive findings across diverse domains. Although delivering novel algorithms for cognitive computation is valuable to the community, this Special Issue will give higher priority to articles with innovative applications and important discoveries in cognitive science. All submissions to the Special Issue undergo a rigorous editorial pre-screening process to assess their relevance, quality, and originality. This initial screening ensures that the manuscripts align with the thematic focus of the Special Issue and meet the Journal's standards.

Evaluation Criteria:

The evaluation of submitted papers will be guided by the following key questions:

- a) Is the research question addressed in the paper of significant relevance to cognitive science?
- b) Do the employed computational methods demonstrate innovation and appropriateness for the research context?
- c) Are the analysis and discussion presented in a systematic and informative manner, contributing to the understanding of cognitive phenomena?
- d) Do the findings presented in the paper have a substantial impact on the relevant research domain?

Peer Review:

The papers will be peer-reviewed by at least three independent reviewers with expertise in the area.

Citation Policy:

Authors are permitted up to one self-citation to any related papers from Cognitive Computation and up to two citations to any single external journal, in adherence to journal policy.

Paper Submission:

Authors are permitted up to one self-citation to any related papers from Cognitive Computation and up to two citations to any single external journal, in adherence to journal policy. All papers should follow the manuscript preparation requirements for the Springer Cognitive Computation submissions, and submit their manuscripts via the online submission manuscript system (<http://www.springer.com/12559>). During submission, authors should select "Cognitive Analysis for Humans and AI" under the Collection tab in the Section of Details.

Important Dates:

Submissions Deadline: 31 March, 2024

First notification of acceptance: 14 May 2024

Submission of revised papers: 28 May, 2024

Final notification to the authors: 5 July, 2024

Submission of final/camera-ready papers: 31 July, 2024

About the Editors:

RUI MAO is a Research Fellow, Lead Investigator at Nanyang Technological University, Singapore. He received his Ph.D. in Computing Science from the University of Aberdeen. His research interests include computational metaphor processing, affective computing and cognitive computing. He and his founded company have developed the first neural network search engine (<https://wensousou.com>) for searching ancient Chinese poems by using modern language, and a system (<https://metapro.ruimao.tech>) for linguistic and conceptual metaphor understanding. He has published several papers as the first author in top-tier conferences and journals, e.g., ACL, AAAI, IEEE ICDM, Information Fusion, and IEEE Transactions on Affective Computing. He served as Area Chair in COLING and EMNLP and Associate Editor in Expert Systems, Information Fusion and Neurocomputing.

QIAN LIU is a Research Fellow at Nanyang Technological University, Singapore. She received her Ph.D. in Software Engineering from the University of Technology Sydney, and her Ph.D. in Computer Science from Beijing Institute of Technology. Her research interests include natural language processing, information retrieval, and question-answering systems. She has published several papers in top-tier conferences and journals, e.g., AAAI, The Web Conference (WWW), IEEE Transactions on Neural Networks and Learning Systems (TNNLS), and Information Fusion. She served as Area Chair in COLING and reviewer in several journals, such as Knowledge-Based Systems and IEEE Transactions on Affective Computing.

XIAO LI holds the position of Lecturer at the Department of Computing Science at the University of Aberdeen, UK. With a strong foundation in AI, machine learning, natural language processing, and computer vision, he also possesses expertise in cross-cutting domains such as energy, medicine, and nutrition. With expertise in Machine Learning, he has contributed to advancing knowledge in these areas through a large number of top conference and journal papers, e.g., ICML, AAAI, ACL, EMNLP, CIKM, ICASSP, INLG and Information Fusion. He served as the Publication Chair at INLG'19, PC members and reviewers at reputable conferences and journals.

ERIK CAMBRIA is the Founder of SenticNet, a Singapore-based company offering B2B sentiment analysis services, and a Professor at NTU, where he also holds the appointment of Provost Chair in Computer Science and Engineering. Prior to joining NTU, he worked at Microsoft Research Asia and HP Labs India and earned his PhD through a joint programme between the University of Stirling and MIT Media Lab. Erik is recipient of many awards, e.g., the 2018 AI's 10 to Watch, the 2019 IEEE Outstanding Early Career award, IEEE Fellow, and is often featured in the news, e.g., Forbes. He is Associate Editor of several journals, e.g., NEUCOM, INFFUS, KBS, IEEE CIM and IEEE Intelligent Systems (where he manages the Department of Affective Computing and Sentiment Analysis), and is involved in many international conferences as PC member, program chair, and speaker.

AMIR HUSSAIN is a Full Professor at Edinburgh Napier University, UK. He obtained his BEng (with the highest 1st Class Honours) and PhD, both in Electronic and Electrical Engineering from the University of Strathclyde in Glasgow, Scotland, in 1992 and 1996, respectively. After holding a post-doctoral research fellowship at the University of Paisley (1996-98) and a research lectureship at the University of Dundee (1998-2000), he was appointed to the Faculty of Computing Science at the University of Stirling in Scotland, where he is currently full Professor and (founding) Head of the Cognitive Signal Image Processing & Control Research (COSIPRA) Laboratory. His research interests are mainly inter-disciplinary and include brain inspired machine learning and cognitive technology for modeling and control of complex systems, with a focus on next-generation healthcare and assistive technology, semantic web and multi-modal human-computer interaction, and autonomous system applications. He holds one international patent in neural computing, has authored/edited twelve Books and published over 200 papers in leading journals and refereed international Conference and work-shop proceedings.