

Special Session on
AI for Understanding Neurodegenerative Diseases
in conjunction with
15th International Conference on Soft Computing and Pattern Recognition (SOCPAR)
December 13-15, 2023
Website: <http://www.mirlabs.org/socpar23>
Hybrid Mode – Online & Offline
Onsite Venues: <http://mirlabs.org/socpar23/venue2.php>

Objectives and Scope

The proposal "AI for Understanding Neurodegenerative Diseases" is to revolutionize the medical landscape of neuro-disorders through the utilization of diverse neuroimaging modalities. By employing a range of advanced imaging techniques, this study aims to enhance our understanding of Neurodegenerative Diseases, their underlying mechanisms, and potential diagnostic and therapeutic approaches. The primary focus will be on integrating and analyzing data from multiple neuroimaging modalities, such as functional magnetic resonance imaging (fMRI), positron emission tomography (PET), and diffusion tensor imaging (DTI). Through this technical investigation, we seek to uncover new insights into the pathophysiology of Neurodegenerative Diseases and identify reliable biomarkers that can aid in the early detection and monitoring of disease progression. The combination of various neuroimaging techniques will enable a comprehensive assessment of structural and functional changes within the brain, providing a more holistic perspective on these complex disorders.

Moreover, the research will involve developing and refining sophisticated algorithms for image processing, data fusion, and pattern recognition to extract meaningful information from the obtained multimodal neuroimaging data. The aim is to establish robust and accurate computational models that can facilitate precise diagnosis, personalized treatment planning, and the assessment of therapeutic efficacy. The outcome of this special track will hold the potential to significantly transform the medical landscape of Neurodegenerative Disease by harnessing the power of advanced neuro-imaging modalities and computational techniques, paving the way for improved patient care and better outcomes in the field of neuroscience.

This session is an important step in exploring the potential of AI in healthcare, with a focus on revolutionizing the medical landscape and promoting interdisciplinary collaboration between researchers, practitioners, and stakeholders in the fields of AI, healthcare, and policy maker. The outputs of this session will serve as a reference for further research in this field and will assist in building a roadmap for the future application of AI in healthcare, which will contribute to the advancement of the medical industry. The session is in compliance with the Conference's mission, which is to promote cutting-edge AI research and its applications to resolve significant societal challenges.

We cordially invite researchers and scientists from machine learning technologies all around the globe to participate and submit their research work to our special session.

Subtopics

The topics include, but are not limited to:

- Machine/Deep learning in medical prognosis and diagnosis of Neurodegenerative Disease
- Computational intelligent frameworks in Clinical decision support systems for Neuro-disorders
- Multimodal Neuroimaging analysis in healthcare
- AI-powered disease outbreak prediction and management
- Applications of AI in drug discovery and development for Neuro-orders
- Electronic Health Records (EHR) management and analysis
- Impact of AI in Predictive Disease Modeling based on patient data and genetic information to assess the risk of developing certain Neuro disorders
- Impact of AI in Predictive Disease Modeling based on patient data and genetic information to assess the risk of developing certain Neurodisorders
- Future trends and opportunities in AI for Neuro-imaging and Neurodisorders

Paper publications

- Proceedings will be published in Lecture Notes in Networks and Systems, Springer (<https://www.springer.com/series/15179>)
- Indexed by SCOPUS, INSPEC, WTI Frankfurt eG, zbMATH, SCImago
- Papers maximum length is 10 pages
- Papers must be formatted according to Springer format (Latex/word) available at: <https://www.springer.com/de/authors-editors/book-authors-editors/manuscript-preparation/5636#c3324>
- Submission Link: <http://www.mirlabs.org/socpar23/submission.php>

Important Dates

Paper submission due: **September 30, 2023**

Notification of paper acceptance: **October 31, 2023**

Registration and Final manuscript due: **November 10, 2023**

Conference Date: **December 13-15, 2023**

Special Session Chairs

- **Dr. Yusera Farooq Khan**, Shri Mata Vaishno Devi University, India.
- **Dr. Abdul Wahid**, National University of Ireland, Galway, Ireland.
- **Dr. Bilal Mir**, University of Toyama, Toyama city, Japan.

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