Special Session on

Emerging Role of AI and ML in Neurological Disorder Management

in conjunction with

23rd International Conference on Hybrid Intelligent Systems (HIS 2023)

December 12-14, 2023

Website: http://www.mirlabs.org/his23

Hybrid Mode – Online & Offline

Onsite Venues: http://mirlabs.org/his23/venue2.php

Objectives and Scope

Neurological disorders pose significant challenges in diagnosis, treatment, and patient care due to their complex and heterogeneous nature. The integration of AI and ML techniques has shown promising potential in addressing these challenges. This special session seeks to discuss and highlight innovative research and developments that combine large language models and generative AI with neurological disorder management. The increasing prevalence of neurological disorders, such as Alzheimer's disease, Parkinson's disease, epilepsy, and stroke, poses a significant global health burden. With an ageing population and changing lifestyle factors, the prevalence of neurological disorders is expected to rise. AI and ML can potentially improve managing these complex and heterogeneous conditions. The session will cover diverse topics, including but not limited to natural language processing (NLP) for analyzing clinical text data, explainable AI approaches for large language models, AI-powered chatbots and virtual assistants for patient communication, synthetic data generation using generative AI, bias mitigation in large language models, transfer learning and domain adaptation for neurological disorder management, and ethical considerations in the application of AI and ML in this context.

Subtopics

The topics include, but are not limited to:

- Natural language processing (NLP) techniques for analyzing clinical text data
- Explainable AI approaches for large language models
- AI-powered chatbots and virtual assistants for effective patient communication
- Synthetic data generation using generative AI
- Bias mitigation and fairness considerations in large language models
- Transfer learning and domain adaptation techniques in utilizing large language models
- Ethical considerations and responsible AI practices in the application of AI and ML
- Personalized treatment recommendations using hybrid models that combine large language models with patient data and clinical guidelines
- Real-time monitoring and predictive analytics using hybrid AI approaches
- Integration of AI and ML with neuroimaging data analysis for improved diagnosis and prognosis.
- Hybrid approaches for improving patient engagement and self-management.

- Robust data collection, curation, and sharing frameworks for developing reliable AI models
- Clinical decision support systems integrating large language models and generative AI for improved patient care
- Novel applications of hybrid AI approaches in specific neurological disorders, such as Alzheimer's disease, Parkinson's disease, epilepsy, stroke, etc.
- Evaluation and validation of hybrid AI models in real-world clinical settings.

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/his23/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 Chair(s)

- **Prof. Sujata Dash,** Department of Information Technology, School of Engineering & Technology, Nagaland University, Dimapur, India.
- **Dr. Saurav Mallik,** University of Arizona, Tucson, MA, USA.

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