



Call for Contributions

1. Inform the Chair: with the title of your contribution

2. Submission URL:

<https://www.iariasubmit.org/conferences/submit/newcontribution.php?event=BRAININFO+2025+Special>

Please select Track Preference as **Brain-SIM-ML**

3. Note: *For 2025, all events will be held in a hybrid mode: on site or virtual choices (live, prerecorded videos, voiced presentation slides, and .pdf slides). We hope for better times allowing us to return to the traditional on site scientific events. However, we are ready to adapt any which way the conditions dictate.*

Special track

Brain-SIM-ML: Advances and Challenges in Brain Simulation and Machine Learning

Bridging Spatial Scales and Addressing Clinical Questions in Neurodevelopmental and Neurodegenerative Disorders

Chair

Dr. Pablo Martínez-Cañada, Department of Computer Engineering, Automation and Robotics, University of Granada, Granada, Spain

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along with

BRAININFO 2025: The Tenth International Conference on Neuroscience and Cognitive Brain Information

<https://www.iaria.org/conferences2025/BRAININFO25.html>

March 9 - 13, 2025 - Lisbon, Portugal

Computational models and machine-learning methods are essential for understanding information processing in the nervous system and how it is disrupted in pathological conditions. However, providing effective diagnostic explanations remains difficult due to several challenges: the need to examine neural disorders at various microscopic and macroscopic levels (neurotransmitters, single neurons or receptors, local networks of neurons, and large-scale brain networks), with little application of multiscale approaches; the limited interpretability of machine learning tools (especially in linking different spatial scales and identifying causal relationships) restricts their use in clinical settings, despite their effectiveness in analyzing large-scale multimodal data; and the lack of interpretable, validated, and scalable non-invasive biomarkers for neural disorders.

Brain-SIM-ML will feature contributions from various sub-fields of computational neuroscience, focusing on addressing the challenges mentioned above. The articles will showcase both recent advancements and future hurdles in brain modeling and computational methods, offering valuable insights into clinical and diagnostic questions related to neurodevelopment and neurodegeneration.

Prospective authors are invited to submit original papers on topics including, but not limited to

- Interpretable machine learning techniques for neuroimaging data analysis
- Multi-scale modeling of neurodevelopmental disorders and neurodegeneration
- Hybrid machine learning and computational modeling approaches for uncovering causal relationships
- Non-invasive interpretable biomarkers of neural-circuit imbalances
- Data integration and quantitative techniques to make large-scale clinical data more tractable

Contribution Types

- Regular papers [in the proceedings, digital library]
- Short papers (work in progress) [in the proceedings, digital library]
- Posters: two pages [in the proceedings, digital library]
- Posters: slide only [slide-deck posted on www.iaia.org]
- Presentations: slide only [slide-deck posted on www.iaia.org]
- Demos: two pages [posted on www.iaia.org]

Important Deadlines

Inform the Chair or Coordinator: As soon as you decide to contribute

Submission: Jan 18, 2025

Notification: Feb 7, 2025

Registration: Feb 20, 2025

Camera-ready: Feb 20, 2025

Note: The submission deadline is somewhat flexible, providing arrangements are made ahead of time with the chairs.

Paper Format

- See: <http://www.iaia.org/format.html>
- Before submission, please check and comply with the editorial rules: <http://www.iaia.org/editorialrules.html>

Publications

- Extended versions of selected papers will be published in IARIA Journals: <http://www.iaiajournals.org>
- Print proceedings will be available via Curran Associates, Inc.: <http://www.proceedings.com/9769.html>
- Articles will be archived in the Open Access ThinkMind Digital Library: <http://www.thinkmind.org>

Paper Submission

<https://www.iaiasubmit.org/conferences/submit/newcontribution.php?event=BRAININFO+2025+Special>

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Registration

- Each accepted paper needs at least one full registration, before the camera-ready manuscript can be included in the proceedings.
- Registration fees are available at <http://www.iaia.org/registration.html>

Contact

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