CALL FOR PAPERS
Paper Submission Deadline: **August 16th, 2021**

III LATIN-AMERICAN WORKSHOP ON COMPUTATIONAL NEUROSCIENCE (LAWCN'21)
HYBRID EVENT: VIRTUAL AND PRESENTIAL

December 8-10, 2021
Federal University of Maranhão (UFMA), Av. dos Portugueses, 1966 - Vila Bacanga, 65080-805, São
Luís, MA - Brazil
https://www.lawcn.com.br

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THE EVENT

In order to overcome the immense challenge of fully understanding the brain, a very fruitful approach is to gather wonderful minds, from different scientific fields, in multi and interdisciplinary scientific endeavors. With this purpose, the Latin-American Workshop on Computational Neuroscience (LAWCN) was born in 2017, putting together students and researchers from the fields of Computational Neuroscience, Artificial Intelligence, and Neuroengineering in an enthusiastic atmosphere for sharing ideas, form networks, and foster collaboration. After a successful second edition (LAWCN'19) in the city of São João Del-Rei, Minas Gerais, LAWCN'21 is going to be hosted in the São Luís (Brazil), which is the capital and largest city of the Brazilian state of Maranhão, located in the Upaon-açu Island. Besides its warm beaches, São Luís has a beautiful colonial Historical Center, a UNESCO World Heritage Site, and is a common stopover for visiting the stunning Lençóis Maranhenses.

We are proud to highlight that we have already secured the presence of four world-class scientists as keynote speakers: Peter Tass (Stanford, USA), Alan Talevi (UNLP, Argentina), André de Carvalho (USP, Brazil) and Kerstin Schimidt (ICe/UFRN, Brazil).

The LAWCN'21 Organizing Committee is very proud to invite researchers from Latin-American and around the world to submit their best data and ideas as papers to be presented at our conference. It is going to be a hybrid conference due to COVID-19 pandemic. Entertaining platforms are going to be used to promote interactive actions between local and remote participants.

AREAS OF LAWCN 2021

a) Computational Neuroscience; b) Neuroscience; c) Neuroengineering and; d) Artificial Intelligence and related topics

GUIDELINES FOR AUTHORS

The following information, article templates, and complete guidelines from Springer can also be found on the event website https://www.lawcn.com.br/submissions.html

- Prospective authors are invited to contribute to the conference by electronically submitting papers in English, Portuguese or Spanish, according to the model found at the event website;
- As in last editions, we plan to publish the selected papers of LAWCN 2021 in the Communications in Computer and Information Science (CCIS) proceedings series, **but approval is still pending**. Best papers (in English) that are related to the scope of the book series will be published as a chapter in Springer Nature (CCIS; ISSN 1865-0929). CCIS is abstracted/indexed in DBLP, Google Scholar, EI-Compendex, Mathematical Reviews, SCImago, Scopus. CCIS volumes are also submitted for the inclusion in ISI Proceedings;

- As mentioned in the book series website: "The topical scope of CCIS spans the entire spectrum of informatics ranging from foundational topics in the theory of computing to information and communications science and technology and a BROAD VARIETY OF INTERDISCIPLINARY APPLICATION FIELDS."
- Papers that are not related directly to the scope of CCIS will be published online in the III Latin-American Workshop on Computational Neuroscience Proceedings (with ISBN) and can be submitted in English, Portuguese, or Spanish.
- Papers will be evaluated based on their quality and significance of the theoretical and practical contribution to Computational Neuroscience, Neuroengineering, Artificial Intelligence, and Neuroscience in general;
- All papers (Short or Full) must be in PDF format and include abstract, figures, tables and references in the minimum/maximum number of pages (according to the category desired);
- Papers can be submitted in four categories (see image below):

LAWCN 2021 SUBMISSIONS

Short Paper 1
(3-8 pages not related directly to Computer Science)
Will be published in LAWCN 2019 Proceedings
ENGLISH | SPANISH | PORTUGUESE

Short Paper 2
(6-9 pages related to Computer Science)
Will be published in Springer CCIS Proceedings
ENGLISH ONLY

Full Paper 1
(10-20 pages not related directly to Computer Science)
Will be published in LAWCN 2019 Proceedings
ENGLISH | SPANISH | PORTUGUESE

Full Paper 2
(10-20 pages related to Computer Science)
Will be published in Springer CCIS Proceedings
ENGLISH ONLY

- Papers can be submitted in English, Portuguese or Spanish, but only the best articles, in English, and related to the scope of CCIS will be published by Springer;
- Papers should be submitted exclusively through the conference submission system, linked in the event website;
- At least one author must register, pay the registration fee, and present the accepted paper orally (in the same language of the text) in order for the manuscript to be included in the workshop proceedings / CCIS volume. If more than one article per the first author is accepted, there will be an extra registration fee.
- One of the authors must sign and attach the disclosure form if the paper is accepted;
- The conference also welcomes contributions in the form of one-page abstracts, in English (preferentially), Portuguese, or Spanish. Accepted abstracts will be published in the conference proceedings only.
- At least one author must register, pay the registration fee, and present the accepted abstract in poster format (in the same language of the text) in order for the manuscript to be included in the workshop proceedings.
- It is highly encouraged that all authors own an identification from ORCID to be included in the manuscript main body.

COMPLETE LIST OF TOPICS

Computational Neuroscience

- Biophysically realistic models
- Single-neuron modeling
- Models of brain networks and circuits
- Sensory processing
- Development, axonal patterning, and guidance
- Memory and synaptic plasticity
- Consciousness
- Computational clinical neuroscience
- Neuroinformatics
- Educational issues
- Neural coding
- Neural statistics
- Dendritic computation
- Neural basis of persistent activity
- Nonlinear receptive field mapping
- Representations of time and sequence
- Reward systems, decision-making simulation
- Synaptic plasticity
- Population coding
- Spiking neural networks and applications
- Complex systems and network conectivity
- Neural Information Theory
- Neurocomputational systems

Neuroscience
- Sensory processing
- Network dynamics
- Reinforcement learning
- Motivation and decision making
- Statistical approaches in neuroscience
- Systems neuroscience
- Learning and memory
- Attention and arousal
- Sensory-motor integration
- Learning in networks
- Educational issues

Neuroengineering
- Large-scale recordings
- Neural signal processing
- Neuromodulation
- Neuroprosthetics
- Closed-loop systems
- Neuromorphism
- Neuro-robotics
- Humanoid robots
- Robots in health
- Robots for elderly people
- Sensors in robotics
- Fusion of sensors
- Hardware implementations in neuroscience
- Software implementations in neuroscience
- Brain Computer Interfaces: design and applications
- Educational issues

Artificial Intelligence and related topics
- Artificial Intelligence
- Techniques in neuroscience

- Bioinformatics
- Clustering and applications
- Computer vision, cognitive and humanoid vision
- Databases, data mining, intelligent data analysis, knowledge-based systems and linguistic tools
- Data visualization and applications
- Deep Learning
- Statistical pattern recognition / document processing and recognition
- Fuzzy and hybrid techniques
- Geometric algebra application in perception action
- High performance computing for pattern recognition
- Image coding, processing and analysis
- Kernel machines
- Mathematical theory of computational neuroscience
- Natural language processing and recognition
- Neural Networks
- Parallel and distributed applications for computational neuroscience
- Robotics and humanoids shape and texture analysis
- Signal processing and analysis
- Spatiotemporal analysis
- Educational issues

IMPORTANT DATES

Papers
* 16th August 2021: Submission deadline for papers
* 30th September 2021: Notification of acceptance (papers)
* 31th October 2021: Camera-ready papers for oral presentations

Abstracts
* 27th September 2021: Submission deadline for abstracts
* 15th October 2021: Notification of acceptance (abstracts)
* 31th October 2021: Camera-ready abstracts

* **8 - 10th December 2021: Workshop, UFMA, São Luís do Maranhão, Brazil and Online.**

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