

## CALL FOR PAPERS AND ABSTRACTS

Paper Submission Deadline: **June 15th, 2019**

### 2nd LATIN-AMERICAN WORKSHOP ON COMPUTATIONAL NEUROSCIENCE

**September 18-20, 2019**

Federal University of São João Del-Rei, São João Del-Rei, Brazil.

<https://www.lawcn.com.br>

Contact: **organization@lawcn.com.br**

### THE EVENT

In order to overcome the immense challenge of fully understanding the brain, a very fruitful approach is to gather the best 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. This time, the Workshop leaves the fast-paced life of the big city for a more relaxed take in the countryside of the welcoming state of Minas Gerais, Brazil, in the three hundred years old colonial city of São João Del-Rei, with its historic buildings and churches, beautiful mountains and cold waterfalls, and exquisite culinary.

We are proud to highlight that we have already secured the presence of eight world-class scientists as keynote speakers: Jim Torresen (Norway), Michela Chiappalone (Italy), Sidarta Ribeiro (Brazil), Diego Peluffo (Ecuador), Ives Passos (Brazil), Gabriel Mindlin (Argentina), Márcio Moraes (Brazil), and Gabriela Castellano (Brazil). Also, we have confirmed that the best papers will be published with Springer (see details below).

The LAWCN 2019 Organizing Committee is very proud to invite researchers from Latin-American and around the world to submit their best work as papers or abstracts to be presented at LAWCN 2019.

### AREAS OF LAWCN 2019

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

### GUIDELINES FOR AUTHORS: PAPERS

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;
- Best papers (in English) that are related to the scope of the book series will be published as a chapter in Springer Nature Communications in Computer and Information Science (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 II 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 2019 SUBMISSIONS**

<p><b>Short Paper 1</b>            (3-8 pages not related directly to Computer Science)            Will be published in LAWCN 2019 Proceedings  <b>ENGLISH   SPANISH   PORTUGUESE</b></p>
<p><b>Short Paper 2</b>            (6-9 pages related to Computer Science)            Will be published in Springer CCIS Proceedings  <b>ENGLISH ONLY</b></p>
<p><b>Full Paper 1</b>            (10-20 pages not related directly to Computer Science)            Will be published in LAWCN 2019 Proceedings  <b>ENGLISH   SPANISH   PORTUGUESE</b></p>
<p><b>Full Paper 2</b>            (10-20 pages related to Computer Science)            Will be published in Springer CCIS Proceedings  <b>ENGLISH ONLY</b></p>

- Papers can be submitted in English, Portuguese or Spanish, but only the best articles, in English, and directly 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;
- It is encouraged that authors own an identification from ORCID to be included in the manuscript main body.

## **GUIDELINES FOR AUTHORS: ABSTRACTS**

The following information and abstract template 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 abstracts in English, Portuguese or Spanish, according to the model found at the event website;
- Abstracts will be published online in the II Latin-American Workshop on Computational Neuroscience Proceedings (with ISBN).
- Abstracts 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. Ongoing and incomplete work is perfectly acceptable for abstracts.
- Authors should strictly observe the following format:
  - Abstracts must contain the following sections (in order): Full title, List of authors, Affiliations, Introduction (with objectives), Methods, Results, Discussion, and Acknowledgements (for funding agencies and others).
  - References should be avoided. If mandatory, they should be kept to a very minimum and should be inserted in short format (without title) in the end of the abstract.
  - Texts must contain a maximum of 600 words, including all sections.
  - Texts must be a single page in length.
  - Authors are allowed to include one figure OR one table only if it can fit in a single page with the main text, placed after Discussion section and before Acknowledgments.
  - Font size, margins, line separation, and other formatting parameters are described in the abstract model and must be observed strictly.
- Authors must submit their abstracts exclusively via e-mail, to [lawcn2019.abstracts@gmail.com](mailto:lawcn2019.abstracts@gmail.com). DO NOT USE the conference paper submission system, linked in the event website;
- Authors may identify their e-mail with the following subject: "Abstract submission: <AUTHOR SURNAME>, <AUTHOR INITIALS> - <INSTITUTION>". For example: "Abstract submission: McCulloch, W. – Univ. of Chicago";
- At least one author must register, pay the registration fee, and present the accepted abstract as poster in the conference (time and place to be defined) in order for the work to be included in the workshop proceedings. If more than one abstract per the first author is accepted, there will be an extra registration fee.
- Abstracts with too many grammatical errors, typos, or formatting problems will be rejected.
- Authors will also be requested to give a 60 to 90-seconds oral presentation (pitch) to the full audience, as a call to his / her poster.
- Abstract, poster, and pitch must be in the same language.

## **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 connectivity
- 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
- Robotics
- Humanoid robots
- Robots in health
- Robots for elderly people
- Sensing 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

- \* **15th June 2019: Submission deadline for papers and abstracts**
- \* 10th July 2019: Notification of acceptance
- \* 05th August 2019: Camera-ready papers due for oral presentations
- \* **18 - 20th September 2019: Workshop, UFSJ – São João Del-Rei, Brazil.**

## ORGANIZATION

*Laboratory of Neuroengineering and Neuroscience (LINNce)  
Federal University of São João Del-Rei (UFSJ)*

### Conference chair

Vinícius Rosa Cota *Federal University of São João Del-Rei, Brazil*

### Conference co-chair

Dante Augusto Barone *Federal University of Rio Grande do Sul, Brazil*

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