

Preface

It is with great pleasure that we held LAWCN 2017 (Latin American Workshop on Computational Neuroscience) at the Hotel Plaza São Rafael, Porto Alegre, Brazil, during November 22–24, 2017. The event was organized by the Federal University of Rio Grande do Sul (UFRGS), one of the leading research institutions in South America.

Neuroscience and artificial intelligence have been areas of study with the highest growth in recent years. Together with the solidification of its theoretical bases, and the support of scientific evidence, we are currently experiencing that these two disciplines are strengthening their links increasingly. The biggest source of inspiration for the development of intelligent machines is the brain of human beings.

The first scientific event in the context of computational neuroscience was an initiative that emerged in 2012 as a way of disseminating knowledge and discoveries through discussions between the different areas related to computational neuroscience, mainly at UFRGS and the Rio Grande do Sul state institutions.

For the first time in Brazil, LAWCN 2017 covered recent advances in basic neuroscience, computational neuroscience, neuro-engineering, and artificial intelligence, along with their different interactions. With four renowned international keynote speakers, from the USA, Germany, France, and Mexico, and four reputed national guests, LAWCN intended to consolidate itself as a reference in Latin America, giving the opportunity for interdisciplinary and state-of-art knowledge to be presented as oral presentations.

This volume of Springer's CCIS series, Vol. 720, comprises 15 papers reviewed by 34 members of the Program Committee from 10 different countries worldwide. These articles cover a wide range of issues concerning artificial intelligence and related techniques, including applications in neuroscience and neuro-engineering. Showcasing diversity and quality, these papers point to future directions of research and developments in this exciting area.

The success of the workshop was due to the dedication and support of many individuals and organizations as well as the funding from CAPES (Brazilian Coordination for the Improvement of Higher Education Personnel) and IBRO (International Brain Research Organization). On behalf of the Organizing Committee, we would like to thank all authors for careful preparation of their papers, and all speakers for sharing their work, experience, and insights at the workshop. All full papers submitted were reviewed by at least two members of the Program Committee. We are grateful to all of them for their important contributions to the workshop.

We hope that the 2017 edition of LAWCN offered good opportunities motivation for important contacts and sharing of knowledge and experiences, which will motivate its participants and readers of these proceedings to foster their careers in all fields

linked to computational neuroscience, giving support and encouragement for the upcoming LAWCN editions.

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Computational Neuroscience

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