IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS

SPECIAL ISSUE ON *COMPLEX- AND HYPERCOMPLEX-VALUED NEURAL NETWORKS*

Complex-valued neural networks (CVNNs) exhibit very desirable characteristics in their learning, self-organizing, and processing dynamics. They are perfectly suited to deal with complex amplitude, composed of amplitude and phase, which is one of the core concepts in physical systems dealing with electromagnetic, light, sonic/ultrasonic, and quantum waves (electron and superconducting waves). This, together with the widespread use of analytic signals, gives them a critical advantage in practical applications in diverse fields of engineering, where signals are routinely analyzed and processed in time/space, frequency, and phase domains. In addition, broad-sense CVNNs such as quaternion and Clifford neural networks, as well as kernel and reservoir approaches, underpin unique new directions in color-information treatment, robotics and control. To further promote research activities in this area, IEEE Transactions on Neural Networks plans to publish a Special Issue on "Complex- and hypercomplex-valued neural networks" to be published in January 2014.

Scope of the Special Issue

We welcome theoretical papers, application papers, as well as survey papers. Topics include, but are not limited to:

- Theoretical aspects of CVNNs such as complex-valued activation functions, gradient, and stability
- Learning/Self-organization algorithms and processing dynamics in CVNNs
- Chaos in the complex domain, coherence, and causality
- Complex-valued associative memories and attractor networks
- Feedforward/Recurrent CVNNs for time series analysis and classification
- Phase-only and phase-sensitive signal processing and nonlinear filtering using CVNNs
- Distributed, widely linear, sparse, and kernel CVNN approaches
- Pattern recognition, classification and time series prediction using CVNNs
- Applications of CVNNs in image processing, speech processing and bioinformatics
- Frequency- , time-frequency, and spatio-temporal domain CVNN processing
- Quantum computation and quantum neural networks
- CVNNs for trajectory tracking, robotics and control
- Clifford, quaternion, and multidimensional neural networks

IMPORTANT DATES

15 January 2013 – Deadline for manuscript submission

15 August 2013 – Notification to authors

15 September 2013 – Deadline for submission of revised manuscripts

1 October 2013 – Final decision

January 2014 – Special issue publication in the IEEE TNNLS

GUEST EDITORS

Akira Hirose, The University of Tokyo, Japan, ahirose .a_t. ee.t.u-tokyo.ac.jp
Igor Aizenberg, Texas A&M University - Texarcana, U.S.A., Igor.Aizenberg .a_t. tamut.edu
Danilo P. Mandic, Imperial College, U.K., d.mandic .a_t. imperial.ac.uk

SUBMISSION INSTRUCTIONS

1. Read the information for Authors at http://cis.ieee.org/publications.html
2. Submit the manuscript by **January 15, 2013** at the IEEE-TNNLS webpage http://mc.manuscriptcentral.com/tnnls and follow the submission procedure. Please, clearly indicate on the first page of the manuscript and the Author's Cover Letter that the manuscript has been submitted to the Special Issue on *Complex- and Hypercomplex-Valued Neual Networks*. Send also an email to the guest editors to notify of your submission.