



## **Pablo A. Estévez – IJCRS'16 Keynote Speaker**

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**Title of the talk:** Big Data Era Challenges and Opportunities in Astronomy: How Computational Intelligence / Machine Learning Can Contribute?

**Abstract:** Astronomy is facing a paradigm shift caused by the exponential growth of the sample size, data complexity and data generation rates of new sky surveys. For example, the Large Synoptic Survey Telescope (LSST), which will begin operations in northern Chile in 2022, will generate a nearly 150 Petabyte imaging dataset. The LSST is expected not only to improve our understanding of time varying astrophysical objects, but also to reveal a plethora of yet unknown faint and fast-varying phenomena. To cope with a change of paradigm to data-driven astronomy new computational intelligence, machine learning and statistical approaches are needed. In this talk I will present big data era challenges and opportunities in astronomy from the point of view of computational intelligence/ machine learning.

**Biography:** Pablo A. Estévez (M'98–SM'04) received his professional title in electrical engineering (EE) from Universidad de Chile, in 1981, and the M.Sc. and Dr.Eng. degrees from the University of Tokyo, Japan, in 1992 and 1995, respectively. He is a Full Professor with the Electrical Engineering Department, Universidad de Chile, and former Chairman of the EE Department in the period 2006-2010.

Prof. Estévez is one of the founders of the Millennium Institute of Astrophysics (MAS), Chile, which was created in January 2014. He is currently leading the Astrominformatics/Astrostatistics group at MAS. He has been an Invited Researcher with the NTT Communication Science Laboratory, Kyoto, Japan; the Ecole Normale Supérieure, Lyon, France, and a Visiting Professor with the University of Tokyo.

Prof. Estévez is the President of the IEEE Computational Intelligence Society (CIS) for the term 2016-2017. He has served as IEEE CIS Vicepresident of Members Activities, Member-at-Large of the IEEE CIS ADCOM, CIS Distinguished Lecturer and as an Associate Editor of the IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS.

Prof. Estévez was general chair of the Workshop on Self-organizing Maps 2012, and is serving as conference chair of the International Joint Conference on Neural Networks (IJCNN), to be held in July 2016, in Vancouver, Canada.

His current research interests include neural networks, self-organizing maps, information theoretic-learning, time series analysis, and advanced signal and image processing. One of his main topics of research is the application of computational intelligence techniques to astronomical datasets and biomedical signals.