



## GERMANO LAMBERT-TORRES

(S'87-M'90-SM'13-F'14)

received the B.S. and M.Sc. degrees in electrical engineering from the Federal University of Itajuba (UNIFEI), Itajuba, Brazil, the B.S. degree in economics from the South Minas Gerais Economic and Social Sciences Faculty, Itajuba, the B.S. degree in mathematics from the Itajuba Faculty of Sciences and Languages, Itajuba, and the Ph.D. degree in electrical engineering from the École Polytechnique de Montreal, Montreal, QC, Canada, in 1990.

From 1983 to 2012, he was a Professor in the Electrical Engineering Department, UNIFEI. From 2000 to 2004, he was the Prorector of Research and Graduate Studies at UNIFEI. He also serves a member of two high committees in Brazil, one for Education: Member of National Final Exam for undergraduate electrical engineers (PROVÃO), 1998-2003, and other for Research: Member of National Council for Research (CA-EE CNPq), 2004-2007. From 1995 to 1996, he was a Visiting Professor at the University of Waterloo, Waterloo, ON, Canada.

Currently, he is Director of R&D at PS Solutions, Brazil, and Chair of the Scientific-Technical Council at Gnarus Institute, Brazil. He is a member of the IEEE Fellow Committee in the Industry Application Society (IEEE IAS), 2017-2019, and the Education Society (IEEE EdSoc), 2018-2020. Also, he is a member of the IEEE Medal in Power Engineering Committee.

He also serves as a consultant for many power industries in Brazil and South America, with more than 150 R&D developed projects. He is a member of several committees in Brazilian Governmental and Regulatory Agencies, such as The Ministry of Education (MEC), The Ministry of Science and Technology (MCT), The National Electric Energy Agency (ANEEL), and The National Petroleum Agency (ANP). He has taught numerous IEEE and IFAC tutorials in the U.S., Europe, and Asia.

Dr. Lambert-Torres is a member of the International Conference on Intelligent Systems Applications to Power Systems (ISAP) international board. He serves on several committees related to intelligent systems, including IEEE and the International Council on Large Electric Systems (CIGRÉ). He served as the General Chair for ISAP in 1999 and 2009, as well as Vice-General Chair for ISAP in 2001 and the Congress on Logic Applied to Technology in 2003 and 2007.

He was a recipient of several awards, including the "Technical Committee Working Group Recognition Award on New Technologies and Practical Applications" from the IEEE Power and Energy Society (PES) (2006), "Outstanding Leadership as Member of the ISAP Board of Directors" from the International Council of ISAP (2007), and "Technical Committee Working Group Recognition Award on Multi-Agent Systems" from the IEEE-PES (2008).

He has completed more than 80 M.Sc. and Ph.D. thesis supervisions and published more than 600 journal and technical conference papers. He is also the author/editor or coauthor of nine books, more than 30 book chapters and 80 transactions papers on intelligent systems and nonclassical logic.

Dr. Lambert-Torres is a Fellow of the IEEE, Class 2014, in the Engineer/Scientist category, with the following citation: *for contributions to the application of intelligent systems to power systems.*

Lectures:

Course #1:

Applications of Intelligent Systems to Power Industries

Abstract:

This short course presents different intelligent techniques and real applications in power industries and power companies. The intelligent methods cover since old approaches, like Knowledge-Based Systems, Case-Based Systems, Classical Neural Networks, Initial Meta-Heuristics, Multi-agent Systems, until the most modern approaches like Modern Meta-Heuristics, Convolutional Neural Networks, Deep Learning, and so on. Trough examples will briefly present these techniques. Also, hybrid systems with different types of integrations: stand-alone systems, weak integration systems, and fused systems, are also presented. This course will also introduce Intelligent techniques that can be applied in Big Data. All presentations have a focus on applications. Real examples of these applications evolve solutions of control, protection, operation of power companies.

Course #2

Applications of Non-Classical Logics to Power Industries

Abstract:

Classical Aristoteles Logic is not the ideal logic to represent events in the real world. This type does not very treat problems like antagonist knowledge, lack knowledge, and incomplete information of logic. This short course presents four relevant logics, which can be combined, to represent the real-world events. The most known logics among there is Fuzzy Logic, which can be described as linguistic values. In this course, the new developments of Fuzzy Logics to represent knowledge will be presented with the Classical TSK model. The second logic presented is the Rough Logic, based on the Rough Set techniques, which is ideal for extracting knowledge from complex databases. The third logic is the Paraconsistent Logic, which allows representing antagonist knowledge, without becomes logic trivial. Finally, the fourth logic is the Non-Reflexive Logic, which treats complex and large databases with incomplete information, without any contour. For all these logic, real applications in power companies will be presented to illustrate their potentials.

Course #3

News Trends of Smart Grids and Smart Cities

Abstract:

The integration of different resources, especially in distribution power systems and in power industries, can be used together to improve the quality of the services. Different levels of integrations and several strategies can be used to concrete these integrations. Also, new equipment appears to help new procedures of operation. This course will present real cases of success of smart grids and, mainly, what works and what does not work in this field. Also, the integration of other public and private services is presented to create smart cities. The fundamental concepts will be presented with possible examples of integration.