

MACHINE LEARNING, DATA MINING, DEEP LEARNING, CHEMOMETRICS... THE HYPE!

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Abstract:

The news and our daily life are full of concepts like Machine Learning, Data Mining or Artificial Intelligence. And it is incredible to see how easy seems to create solutions based on “data” and algorithms capable to predict everything in a glimpse! This is mostly due to the incredible advances made in computation (hardware and software), the increasing capabilities of generating and storing all types of data and, especially, the benefits (societal and economical) that generate the analysis of such data. Chemometrics (a.k.a. the wonderful art of applying Machine Learning in chemical data) has played an important role since the late 1970s, analyzing data within natural science (and especially in Analytical Chemistry). Even with the strong parallelisms between all of the abovementioned terms and being popular with most of us, it is still difficult to clearly define or differentiate the meaning of Machine Learning, Data Mining, Artificial Intelligence, Deep Learning and Chemometrics. This conference brings some light about the meaning of all those terms, defines their application ranges and gives some personal experiences applying them. This talk is full of personal, sometimes probably subjective, opinions and statements. Therefore, all opinions here are welcome for constructive discussion with the only purpose of Learning (like the Machines Do nowadays!!)



Born in 1978. He obtained his PhD (Cum Laude) in Chemistry from the Autonomous University of Barcelona, Spain. He was employed, first as post-doctoral student (2007 – 2009), and afterwards as Associate Professor (2010 – 2019) at the Department of Food Science of the University of Copenhagen, Denmark. During 2017 he was, at the same time, Guest Professor of the Federal University of Pernambuco, Brazil. He is now Distinguished Professor at the Department of Analytical Chemistry of the University of the Basque Country, Spain; and Research Professor of IKERBASQUE, The Basque Foundation for Science. Current research interests include hyperspectral and digital image analysis, and the application of

Chemometrics (i.e. Machine and Deep Learning). He has authored more than 170 publications (130+ peer-reviewed papers, books, book chapters, proceedings, etc.) and given more than 60 conferences and courses at international meetings. Jose has supervised or is currently supervising several Masters, Post Docs and PhD students and he is an editorial board member of four scientific journals within chemometrics, pharmaceutical sciences and analytical chemistry. Moreover, he received the “2014 Chemometrics and Intelligent Laboratory Systems Award” for his achievements in the field of Chemometrics and the “2019 Tomas Hirschfeld Award” for his achievements in the field of Near Infrared. He is editor of the book “Hyperspectral Imaging. Volume 32. Elsevier. ISBN: 9780444639776. In Data Handling in Science and Technology.

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