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Artificial Intelligence and Big Data management: the dynamic duo for moving forward data centric sciences

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Abstract

After vivid discussions led by the emergence of the buzzword "Big Data", it seems that industry and academia have reached an objective understanding about data properties (volume, velocity, variety, veracity and value), the resources and "know how" it requires, and the opportunities it opens. Indeed, new applications promising fundamental changes in society, industry and science, include face recognition, machine translation, digital assistants, self-driving cars, ad-serving, chat-bots, personalized healthcare, smart industry and more.

The first lesson of the era of "Big Data" is that it is possible to access and exploit representative "samples" of available data collections thanks to the availability of the necessary resources for storing it and running greedy processing tasks on it. The second lesson is that computer science and mathematics disciplines must generate synergy with other sciences in order to exploit these new available "value". The consequence is the emergence of "new" data centric sciences: data science, digital humanities, social data science, network science, computational science. These sciences with their new requirements and challenges call for a need to revisit the fundaments of databases, artificial

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intelligence and other disciplines used for addressing them with new perspectives.

This novel and multidisciplinary data centric and scientific movement, promises new and not yet imagined applications that rely on massive amounts of evolving data that need to be cleaned, integrated and analysed for modelling purposes. Yet, data management issues are not usually perceived as central. In this lecture I will explore the key challenges and opportunities for data management in this new scientific world, and discuss how a possible data centric artificial intelligence community can best contribute to these exciting domains. If the moto is not academic, huge numbers of dollars being devoted to related applications are moving industry and academia to analyse these directions.

Short Bio

Genoveva Vargas-Solar is senior scientist of the French Council of Scientific Research (CNRS) and member of the HADAS group of the Informatics Laboratory of Grenoble (LIG). Since 2008, she is deputy director the French-Mexican Laboratory of Informatics and Automatic Control (LAFMIA). She is regular member of the Mexican Academia of Computing. She was elected president of the Mexican Society of Computer Science (2007-2009). She obtained her *Habilitation à Diriger des Recherches* from University of Grenoble (2014); her PhD in Computer Science at University Joseph Fourier in 2000 and her PhD in Literature at University Stendhal (2015).

Her research interests in Computer Science concern the design & construction of the next generation of data management systems guided by Service Level Agreements (SLA). She conducts fundamental and applied research for addressing these challenges on different architectures ARM, raspberry,

cluster, cloud, and HPC. She has applied her results to e-Science applications in Astronomy, Biology, Social & Human sciences, industry 4.0. Her research interests in Literature concern middle age Literature, myths' critics and myths' analysis applied to different myths of origins.

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