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together with the
DWIH New Delhi and French Institute in India (IFI)
cordially invite you to the

SCIENCE CIRCLE LECTURE

Data Science and High-Performance Computing: Evolution or Revolution for Research?

Prof. Dr. Vincent Heuveline
Director, the Computing Centre and CIO, Heidelberg University

Wednesday 20th February 2019, 6 pm onwards

Auditorium of Alliance Française Delhi
72, K.K. Birla Lane, Lodhi Estate, New Delhi 110003

To attend, please register on
https://bit.ly/2SqM5Hk

Prof. Dr. Vincent Heuveline

Prof. Dr. Vincent Heuveline received his Ph.D. from Rennes University and studied both in Germany and France. He is now the CIO of Heidelberg University and Director of the Computing Centre. As a professor at Heidelberg University, he leads the Engineering Mathematics and Computing Lab (EMCL) under the roof of the Interdisciplinary Centre for Scientific Computing (IWR). Furthermore, he is the Group Leader of the research group Data Mining and Uncertainty Quantification at the Heidelberg Institute for Theoretical Studies (HITS gGmbH). His research interests include uncertainty quantification (UQ) in scientific computing, high performance and dataintensive computing, and software engineering, with main applications in medical engineering and energy research. Besides lectures in scientific computing, he is strongly involved in teaching IT security - with both lectures and dedicated seminars - at Heidelberg University. He serves as a program committee member of several international conferences on high performance computing. He is widely consulted by the industry with respect to the deployment of numerical simulation, cloud computing and IT security in industrial environments.

Data Science and High-Performance Computing: Evolution or Revolution for Research?

The accurate description of our world, and focus on relevant details, are a keystone in many major research areas. The impact of these research activities is omnipresent in our society, e.g. the daily weather forecasting, the computer aided surgery, optimization of distributed power supply for electrical network. In the last decade, the developments in the area of supercomputer have been subject to profound and highly dynamic changes. The paradigm shift towards multicore and manycore technologies is offering a tremendous potential of computing power for scientific and industrial applications. A similar trend exists in data sciences: the ability to store and process data grows exponentially leading to new perspectives but also associated challenges. In order to take full advantage of these new technologies, holistic approaches coupling the expertise ranging from fundamental mathematics, computer science and engineering sciences are needed.

Prof. Dr. Heuveline will present these new developments and challenges and concentrate on the areas of High-Performance Computing (HPC), Big data and Artificial intelligence (AI). He will further describe new application scenarios in the medical engineering. In this field, the last two decades were characterized by a considerable number of newly developed techniques and supportive instruments in an effort to quantify and improve processes in the medical, clinical and surgical context. Based on these examples, he will then address the question if the current developments in data science, high performance computing as well as artificial intelligence can be understood as a revolution or as a continuous – and therefore predictable – development process.

• Please carry your photo identity proof   • Laptops, cameras and other electronic gadgets are not allowed inside the premises

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