

INVITED LECTURE

Professor Rizos Sakellariou (University of Manchester) is going to lecture on

Parallel Computing in the era of Big Data and Industry 4.0

at the Informatics Department **Kalamaria premises** (Ethnikis Antistaseos 16) on
Monday 19th November at 19:00, room EA1

ABSTRACT

A number of data science applications are not only data-intensive but also compute-intensive with significant computation requirements. Parallel computing has traditionally been the main approach used to speed-up the performance of compute-intensive applications. However, as the complexity and the costs associated with modern execution platforms and applications grow, speeding-up performance through parallelism cannot be viewed as a single objective to achieve at any cost. Instead, with such execution platforms consuming large amounts of energy, one needs to assess improvements in execution time against other types of cost. Cloud computing platforms, which are often used to execute compute- and data-intensive applications, typically follow a resource-on-demand paradigm, where users can pay for what resources they need. Their increasing complexity is partly masked by having users pay, sometimes for more than they need.

In this respect, the talk will motivate the need to address efficiently the various trade-offs related to the concurrent use of multiple resources offered by Cloud providers as well as the characteristics of applications. Algorithms, techniques, experimental results and ongoing research will be presented in relation to the execution of compute- and data-intensive applications on the Cloud in a way that tries to strike a balance between different trade-offs such as execution time, energy consumption, monetary cost and more. The talk will conclude with examples motivating this research from current Big Data and Industry 4.0 projects.

About the Speaker:



Rizos Sakellariou obtained his PhD from the University of Manchester in 1997 for a thesis on compile-time parallel loop partitioning and scheduling. Since then, he has held posts with Rice University and the University of Cyprus and for the last 18 years with the University of Manchester where he is currently a Reader, leading a laboratory carrying our research in High-Performance, Parallel and Distributed systems, which over the last ten years has hosted more than 30 doctoral students, postdoctoral researchers and long-term visitors. He has carried out research on a number of topics related to parallel and distributed computing (including Grid and Cloud computing), has published more than 150 papers, has been involved with the organization of over 150 conferences and has participated in more than 20 funded projects. Further information about his research can be found from <https://scholar.google.gr/citations?user=5LPRRM8AAAAJ>