

PRESS INFORMATION

Pioneering software for multiple genome analysis in biomedicine from Austria and Spain

Mr.SymBioMath@ECCB2016

From September 3 to September 7, 2016 the 15th European Conference on Computational Biology took place in The Hague, Netherlands. The members of the EU-project Mr.SymBioMath used this high-ranking international conference to present their results to the research community. A half-day tutorial, one of the official pre-meeting events of this conference, enabled researchers to try out the developed tools. In the tutorial titled "Scientific Workflows under Galaxy. Use Case: multiple genome comparison" Oscar Torreno Tirado and Michael Krieger demonstrated participants from 14 different countries how to conduct multi-genome comparisons. Additional results of the Mr.SymBioMath project were presented in the poster session with the poster "High resolution refinement of Large Scale Genomic Rearrangements using repetitions: A case study" from Jose Arjona-Medina, Guillermo Thode, and Oswaldo Trelles.

Cloud Computing for genome analysis

The EU-funded project Mr.SymBioMath researches the optimization and performance of calculation of the field of instrumentation biomedicine and bioinformatics. Applications are for example the study of allergic reactions to drugs and the creation of evolutionary family trees of different species based on genetic information.

Computer as a basis for research and development nowadays are solving tasks at a speed and efficiency that were not feasible a few years ago and even unimaginable decades ago. Every day, huge amounts of data are processed on desktop computers, laptops, tablets, smartphones and supercomputers today. This allows i.a. the simulation of weather events by solving complex equations, or help solving difficult problems of quantum physics or allow deciphering the genomes of organisms.

In particular, the genetics is a field that requires a great wealth of data and also produces a lot of data. For example the sequenced genome of one person requires about 3 gigabytes (3,000 megabytes) of disk space. Based on these data volumes and the need to process this data as soon as possible, experts have begun to develop solutions for analysis and management of large amounts of data to deal with so-called Big Data.

About Mr.SymBioMath (<http://www.mrsymbiomath.eu/>):

The project High Performance, Cloud and Symbolic Computing in Big-Data Problems applied to Mathematical Modeling of Comparative Genomics (Mr.SymBioMath) running from February 2013 to January 2017 is being funded from the European Union's Seventh Framework for research, technological development, and demonstration as an Industry-Academia Partnerships and Pathways (IAPP) project under grant agreement number 324554.

About RISC Software GmbH (<http://www.risc-software.at>)

RISC Software GmbH performs research and development for industrial partners since the company's foundation by Prof. Bruno Buchberger in 1992. The core competences symbolic computation, mathematics and computer science are applied to develop remarkable software solutions in logistics informatics, applied scientific computation, medical informatics and advanced computing technologies.

About UMA (<http://www.bitlab-es.com/>)

The Computer Architecture Department at the University of Malaga (AC-UMA) is an academic and research group with particular experience in experimental and theoretical work in high performance computing; including the development of new parallel compilers, the design of VLSI circuits and the mapping of applications over clusters, multiprocessor machines and Grid-based environments; having also strong in-house computer support.

About Institute of Bioinformatics JKU Linz (<http://www.bioinf.jku.at/>)

The Institute of Bioinformatics of the Johannes Kepler University Linz lead by Prof. Hochreiter conducts internationally renowned research and provides profound education in bioinformatics. It has strong expertise in developing machine learning methods and extensive experience in data analysis of biological and medical data.

Pictures

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