BIOTECHNO 2015

Forward

The Seventh International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies (BIOTECHNO 2015), held between May 24-29, 2015 in Rome, Italy, continued a series of events covering topics related to bioinformatics, biocomputational systems and biotechnologies.

Bioinformatics deals with the system-level study of complex interactions in biosystems providing a quantitative systemic approach to understand them and appropriate tool support and concepts to model them. Understanding and modeling biosystems requires simulation of biological behaviors and functions. Bioinformatics itself constitutes a vast area of research and specialization, as many classical domains such as databases, modeling, and regular expressions are used to represent, store, retrieve and process a huge volume of knowledge. There are aspects concerning biocomputation technologies, bioinformatics mechanisms dealing with chemoinformatics, bioimaging, and neuroinformatics.

Biotechnology is defined as the industrial use of living organisms or biological techniques developed through basic research. Bio-oriented technologies became very popular in various research topics and industrial market segments. Current human mechanisms seem to offer significant ways for improving theories, algorithms, technologies, products and systems. The focus is driven by fundamentals in approaching and applying biotechnologies in terms of engineering methods, special electronics, and special materials and systems. Borrowing simplicity and performance from the real life, biodevices cover a large spectrum of areas, from sensors, chips, and biometry to computing. One of the chief domains is represented by the biomedical biotechnologies, from instrumentation to monitoring, from simple sensors to integrated systems, including image processing and visualization systems. As the state-of-the art in all the domains enumerated in the conference topics evolve with high velocity, new biotechnologes and biosystems become available. Their rapid integration in the real life becomes a challenge.

Brain-computing, biocomputing, and computation biology and microbiology represent advanced methodologies and mechanisms in approaching and understanding the challenging behavior of life mechanisms. Using bio-ontologies, biosemantics and special processing concepts, progress was achieved in dealing with genomics, biopharmaceutical and molecular intelligence, in the biology and microbiology domains. The area brings a rich spectrum of informatics paradigms, such as epidemic models, pattern classification, graph theory, or stochastic models, to support special biocomputing applications in biomedical, genetics, molecular and cellular biology and microbiology. While progress is achieved with a high speed, challenges must be overcome for large-scale bio-subsystems, special genomics cases, bionanotechnologies, drugs, or microbial propagation and immunity.

The conference had the following tracks:
- Microbiology

- Bioinformatics
- Bio-medical technologies

The conference also featured the following symposium:
- **BIOCOMPUTATION 2015,** *The International Symposium on Big Data and BioComputation*

We take here the opportunity to warmly thank all the members of the BIOTECHNO 2015 technical program committee, as well as the numerous reviewers. The creation of such a high quality conference program would not have been possible without their involvement. We also kindly thank all the authors that dedicated much of their time and effort to contribute to BIOTECHNO 2015. We truly believe that, thanks to all these efforts, the final conference program consisted of top quality contributions.

Also, this event could not have been a reality without the support of many individuals, organizations and sponsors. We also gratefully thank the members of the BIOTECHNO 2015 organizing committee for their help in handling the logistics and for their work that made this professional meeting a success.

We hope BIOTECHNO 2015 was a successful international forum for the exchange of ideas and results between academia and industry and to promote further progress in the area of bioinformatics, biocomputational systems and biotechnologies. We also hope that Rome, Italy provided a pleasant environment during the conference and everyone saved some time to enjoy the historic beauty of the city.

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