



KES'2003

Seventh International Conference on Knowledge-Based Intelligent Information & Engineering Systems

3, 4 & 5 September 2003

University of Oxford, United Kingdom

Invited session: Intelligent Techniques for Biology and Chemistry

Objectives

In the last few years, new improved experimental techniques and tools have made possible to collect large quantities of biological and chemical data. There is a critical need for innovative knowledge discovery tools to sift through vast volumes of heterogeneous biological/ chemical data, to analyze these data and express them into new knowledge. The analysis and interpretation of this data range from traditional approaches (statistics, inductive logic) towards more general computational intelligence systems applied to process biological and chemical data: knowledge-based approaches (rule-based inference systems), connectionist systems, knowledge-based information extraction and data mining.

The objective of this invited session is to bring together scientists engaged in artificial intelligence, bioinformatics and chemoinformatics research. The principal challenge the invited session will try to deal with is the communication difficulties that can exist yet between experts in biology, chemistry and experts in computational intelligence. Consequently, it will provide a forum for identifying important contributions and opportunities for research on the application of artificial intelligence to biology and chemistry.

Topics of interest include (but are not limited to)

Relevant intelligent techniques:

- machine learning
- soft computing
- pattern recognition
- knowledge representation
- databases
- stochastic modeling
- string and graph algorithms

- linguistic methods
- constraint satisfaction
- parallel computation

Biology areas of interest:

- molecular structure
- functional genomics
- molecular sequence analysis
- evolution and phylogenetics
- molecular interactions
- metabolic pathways
- general molecular biology
- computational biology
- information and data management for experimental biology

Chemistry areas of interest:

- molecular sequence analysis
- chemical process analysis
- SAR/QSAR
- modelling of processes in industrial and other environments
- toxicology
- pharmacogenomics
- combinatorial libraries and drug design
- computational chemistry
- information and data management for experimental chemistry

Instructions for Authors

Only electronic copies of the papers in Microsoft Word, PDF or Postscript forms are acceptable for review purposes and must be sent to the session chairs. However, please note that you would be required to send hard copy of the final version of your paper.

Papers must correspond to the requirements detailed in the Instructions to Authors placed on the Conference Web Site:

<http://www.hotwolf.f9.co.uk/kes/kes2003/#submission>

All papers must be presented by one of the authors, who must pay the Registration Fee.

Registration

The amount of the Registration Fee will be published on the Conference Web Site (<http://www.hotwolf.f9.co.uk/kes/kes2003/#registration>). For guidance, last years registration fee was about £325 (early standard registration) and £220 student registration. The organizers expect the fee this year to be in the same range. The organizers also expect to be able to offer an attractive price on the Fee combined with the cost of accommodation at St Anne's College, University of Oxford.

Instructions for Registration and a web-based Registration system will also be available on the Conference Web Site.

Publication

The Conference Proceedings will be published by Lecture Notes in Artificial Intelligence (LNAI), Springer.

Extended versions of selected papers will be considered for publication in the International Journal of Knowledge-Based Intelligent Engineering Systems (www.bton.ac.uk/kes/journal/) and the Journal of Intelligent and Fuzzy Systems published by IOS Press (<http://www.iospress.nl/site/html/10641246.html>).

Important Dates

Deadline for receipt of papers by Session Chair: **March 15, 2003**

Notification of acceptance: **April 5, 2003**

Camera-ready papers to session chair by: **April 20, 2003**

Session chairs:

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