Bioinformatics is the field of science in which Biology, Computer Science, and information technology merge to form a single discipline. The ultimate goal of the field is to enable the discovery of new biological insights as well as to create a global perspective from which unifying principles in Biology can be discerned. The analysis and interpretation of biological data is an extremely hard task due to their complexity, size and noisy nature. Recent applications of Computational Intelligence (CI) in this area suggest that they are well-suited to this area of research. This workshop will highlight applications of CI to a broad range of topics. Particular interest will be directed towards novel applications of CI approaches to problems in these areas.

Computational Intelligence, a sub-branch of Artificial Intelligence, studies, mostly nature inspired, adaptive mechanisms to facilitate intelligent behavior in complex and changing environments. Some of the most important CI representative methods are: Artificial Neural Networks, Evolutionary Algorithms, Swarm Intelligence, Artificial Immune Systems, Ant-colony Optimization, and Fuzzy Systems. Individual techniques from these CI paradigms, as well as hybridizations between CI approaches, have been applied successfully to solve Applied Biology, Bioinformatics and Molecular Biology problems.

The aim of CIAB2012 workshop is to serve as an interdisciplinary forum for bringing together specialists and to deal with problems from the field of Biology, Bioinformatics, Computational Biology, Chemical Informatics, and Bioengineering. Issues related to the theory of Computational Intelligence techniques, as well as applications in Bioinformatics and Computational Biology will be addressed in this workshop in order to motivate research in new trend-setting directions. This is the second year of the existence of the CIAB2012 workshop. CIAB2011 took place in Corfu, Greece, 15-18 September, 2011 at the 12th EANN/7th AIAI Joint Conference (http://delab.csd.auth.gr/eann2011/).

CIAB2012 welcomes paper submissions introducing and implementing Computational Intelligent techniques to address various problems in Bioinformatics and Computational Biology. Our aim is to bring together researchers, engineers, developers and practitioners from academia to industry working in multi-disciplinary area and technically converging areas. Topics of interest include, but are not limited to:

- Systems Biology
- Molecular Sequence Alignment and Analysis
- RNA and protein folding and structure prediction
- Gene expression analysis from microarrays
- Protein-Protein interactions
- Biological Networks
- Biological Processes
- Biological and Medical Ontologies
- Computational Proteomics and Genomics
• In-silico Optimization of Biological Systems
• High-Throughput Data Analysis (microarrays, mass spectrometry, EST, NGS etc.)
• Analysis of Large Biological Data Sets
• Medical Image Analysis and Pattern Recognition

Authors are invited to submit original and significant research contributions in the aforementioned areas. All submissions will be reviewed by at least two reviewers. Manuscripts should be prepared according to the standard format of regular papers specified in EANN conferences and should be restricted to a maximum of 10 pages. Detailed instructions for preparing and submitting the manuscript are provided at http://www.eann.org.uk/eann2012/submissions.php. Workshop papers will be published in the EANN 2012 proceedings in Springer CCIS Series. Furthermore, it will be investigated the possibility of publishing extended versions of the presented research papers in an edited book, issued by some international publisher or in a special issue of an international research journal.

For every question about the manuscripts preparation, their submission and the organization of the workshop authors could contact us in: sfg@teikal.gr, mavroudi@ceid.upatras.gr or theofilk@ceid.upatras.gr.

Important Dates
Paper submission deadline : May 15, 2012
Notification of acceptance : May 30, 2012
Camera-ready copy : June 15, 2012

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