

# Call for Chapters for the *Handbook of Research on Machine Learning Applications and Trends: Algorithms, Methods and Techniques*

**Editors:** E. Soria, J.D. Martín, R. Magdalena, M.Martínez, A.J. Serrano.  
IDAL, Intelligent Data Analysis Laboratory, <http://idal.uv.es>,  
Electronic Engineering Department, ETSE,  
University of Valencia  
Valencia, Spain

Proposal Deadline: April 1, 2008

## **Introduction:**

Machine Learning (ML) is devoted to the study of algorithms, methods and techniques that carry out self-learning. Although there are many other possible classifications, a simple classification of ML methods is based on the type of learning used: inductive or deductive. The machine-learning approach is a very useful tool when the amount of data is very large, and a model is not available that could explain the generation/relation of the data set. The main idea that surrounds all these methods (Bayesian Networks, Neural Networks, Kernel Methods, etc) is obtaining a model from the data set; in other words, the use of data to extract knowledge, or the use of knowledge to transform input data into output result. Although these methods have high computational costs, their use has grown exponentially due to the increase in the computational power of computers in the last ten years. As a consequence, the main objective of this book is to provide readers with the most recent trends in Machine Learning research. Moreover, given the high number of real applications that are feasible, special attention will be paid to those applications that are especially original or have a notable impact from the economic or social point of view.

**Coverage:** The **Handbook of Research on Machine Learning Applications and Trends: Algorithms, Methods and Techniques** will feature chapters authored by specialists in the different ML fields offering an in-depth description of key terms and concepts related to different areas, issues and trends regarding machine learning applications, methods, and techniques. The foremost contribution of the handbook will be the chapters especially devoted to describing the practical applications of ML which have only been briefly mentioned in previous publications on ML that tend to focus on theory.

## **Recommended topics include, but are not limited to, the following:**

<i>Neural Networks</i>	<i>Decision &amp; Regression Trees</i>
<i>Kernel Methods</i>	<i>Graphical Models.</i>
<i>Fuzzy Logic</i>	<i>Statistical Methods.</i>
<i>Inductive Learning</i>	<i>Reinforcement Learning</i>
<i>Learning by Examples</i>	<i>Multi-Agent Learning</i>
<i>Clustering</i>	<i>Learning in Planning</i>
<i>Swarm Intelligence</i>	<i>Active Learning</i>
<i>Semisupervised Learning</i>	<i>Instance-Based Learning</i>

*Data Mining*  
*Knowledge Representation*  
*Knowledge Acquisition*  
*Discovery Techniques*  
*Automated Planning*  
*Combinatorial Search*  
*Knowledge-based Systems*  
*Bayesian Methods.*  
*Natural Language Processing*  
*Probabilistic Reasoning*  
*Self-adaptation Techniques*  
*Learning Theory*  
*Cooperative Learning*  
*Information Retrieval*  
*Meta-Learning*  
*Computational Intelligence*  
*Unsupervised Learning*

*Grammatical Inference*  
*Vision and Learning*  
*Data Pre-Processing*  
*Dimensionality Reduction*  
*Rule Extraction*  
*Incremental Algorithms*  
*Scalable Algorithms*  
*Visualization*  
*Graph learning*  
*Knowledge Management*  
*Expert Systems Application*  
*Intelligent Problem Solving*

*Machine learning applications*  
*(medicine, games, biology,*  
*industrial applications, robotics,*  
*security, etc..)*

**Invited Submissions:** Individuals interested in submitting chapters on the above-suggested topics or other related topics in their area of interest should submit via e-mail an abstract (500 words) clearly explaining the mission and concerns of the proposed chapter by April 1, 2008. We encourage other topics that have not been listed in our suggested list, particularly if the topic is related to the research area in which you have expertise. You will be notified about the status of your proposed topics by May 1, 2008. Upon acceptance of your proposal, you will have until August 15, 2008 to prepare your full chapter of 5,000-7,500 words and 7-10 related terms and their appropriate definitions. Guidelines for preparing your paper and terms and definitions will be sent to you upon acceptance of your proposal. All submitted chapters will be reviewed on a double-blind review basis.

This book is tentatively scheduled for publishing by IGI Global in 2010 as part of the Information Science Reference imprint. IGI Global (formerly Idea Group Publishing), [www.igi-global.com](http://www.igi-global.com), is the publisher of the IGI Publishing (formerly Idea Group Publishing), Information Science Publishing, IRM Press, CyberTech Publishing, Information Science Reference (formerly Idea Group Reference), and Medical Information science Reference imprints.

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[idal@uv.es](mailto:idal@uv.es).