



# International Journal of Machine Learning and Cybernetics

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Call for Papers:  
Special Issue of

International Journal of Machine Learning and Cybernetics on  
"Recent Advances of Statistics in Computational Intelligence (RASCI)"

Submission Deadline: 15 July 2014

## [Introduction]

The core mission of computational intelligence models is to mainly find the statistical disciplines hidden in the data sets. Statistical analysis is the most important theoretical fundamental of different computational intelligence models. For example, Support Vector Machines (SVMs) and other kernel methods are based on the framework of statistical learning; Bayesian methods can be seen as a subset of the field of statistics in which the evidence about the true state of the world is expressed in terms of degrees of belief or Bayesian probabilities; Neural networks (NNs) provides a representation framework for familiar statistical constructs, etc. In general, all the main tasks in computational intelligence, including supervised/unsupervised classification, regression, clustering, density estimation, can be represented as statistical procedures, and all the models in computational field can be explained from a statistical perspective, meanwhile there is scope for general statistical modeling in the context of all computational intelligence models, and criteria for model-choice can be and in-deed have been applied to computational intelligence models. Additionally, the latest and biggest opportunity and challenge of intelligence investigation field, the "big data", emphasizes the role of statistic to an unprecedented level in research community.

Therefore, from a certain sense, the nature of the computational analysis may finally be located in statistics. In the past, previous researchers have proposed a lot of landmark work related to statistical theory in computational analysis field, including the principle of minimization of the empirical learning risk function, the

sparse representation of images, the maximal information coefficient, etc. We also believe that in the future, statistic theory seems will continue to undertake critical comparisons in common area of computational intelligence such as discriminate analysis (pattern recognition), cluster analysis (associative memories) and causality analysis. Concentrating on the statistical principle of different computational intelligence models is more essential to promote the development of the investigations in this field, and the final objective of artificial intelligence should be realized by stimulating the statistical discipline of the real world with computers.

In order to share the latest progress and current challenges in the fields of statistical theory and methodology for handling the computational intelligence, we are very pleased and honoured to edit this special issue of the Journal of Machine Learning and Cybernetics.

## [Scopes and Topics]

Overall, this special issue will include, but not limited to, the following topics:

- Active Learning
- Bayesian versus Non-Bayesian approaches
- Boosting
- Bootstrap and Sub-sampling
- Causality analysis
- Conjugate functions
- Deep learning
- Density estimation
- Dimension Reduction
- EM Algorithm

- Generalized Linear Models
- Graphical Models
- Hidden Markov Models
- Information distribution approach
- Kernel Approach
- KKT conditions
- Manifold Methods
- Maximum likelihood
- Minimum Description Length
- Minimum Message Length
- Mixture Models
- Model Selection
- Online Learning
- Parametric and Nonparametric Classification/regression/ clustering
- PCA
- Reinforcement Learning
- Semi-Supervised Learning
- Structured Prediction
- Unconstrained and constrained optimization

### [Important Dates]

Due date of Paper Submission: **15 July 2014**  
 First round notification: September 30, 2014  
 Revised version due: November 30, 2014  
 Final decision notification: **December 31, 2014**  
 Tentative publication date: March 1 2015

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### [Submission Guidelines and Manuscript preparation]

All the submission will be online submitted and handled. The author should firstly register an IJMLC account via the online Editorial System (<http://www.editorialmanager.com/jmlc/default.asp>) and then the prepared manuscript can be submitted to IJMLC by choosing article type "**S.I.: RASCI**". The submission passing the initial check (e.g., language quality, scope, plagiarism, etc.) will be sent out for the blinded review by at least two reviewers. Based on the available review-reports, Guest editors will submit his recommendation to Editor-in-Chief, who will make the final decision on submission. The submission should be prepared according to the two-column Springer journal template including Word or Latex, which can be downloaded from "[Does Springer provide templates and style files for preparing a journal article?](#)" on the Springer [Frequently Asked Questions](#) webpage.

Regarding the issues in the preparation and handling of your paper, you can feel free to contact Guest Editors (James N. K. Liu, [James.liu@polyu.edu.hk](mailto:James.liu@polyu.edu.hk) or Honghua Dai, [hdai@deakin.edu.au](mailto:hdai@deakin.edu.au)) or Guest Editors' Assistant (Yanxing Hu, [ijmlc.rasci@gmail.com](mailto:ijmlc.rasci@gmail.com), [csyhu@comp.polyu.edu.hk](mailto:csyhu@comp.polyu.edu.hk)).



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