

PUBLICATION INTERNE

**A stochastic local search
combined with support vector
machine for web services
classification**

Abdelouahab Laachemi

Juin 2016

03 Rue des Frères Aïssou – Ben Aknoun – ALGER – ALGERIE
Tél. : 021 91 62 05 à 08 – Fax : 021 91 21 26
[http : //www.cerist.dz](http://www.cerist.dz)

PUBLICATION INTERNE

**A stochastic local search
combined with support vector
machine for web services
classification**

Abdelouahab Laachemi

Juin 2016

03 Rue des Frères Aïssou – Ben Aknoun – ALGER – ALGERIE
Tél. : 021 91 62 05 à 08 – Fax : 021 91 21 26
[http : //www.cerist.dz](http://www.cerist.dz)

Abdelouahab Laachemi

ISRN CERIST- DTRI-16-000000016-DZ

A stochastic local search combined with a support vector machine for web services classification

ISRN CERIST- DTRI-16-000000016-DZ

CERIST -DTRI-

Date de publication

Résumé : In this paper, we are interested in the Web service classification. We propose a classification method that first uses a stochastic local search (SLS) meta-heuristic for feature selection then call the Support Vector Machine (SVM) to do the classification task. The proposed method that combines SLS and SVM for Web service classification is validated on the QWS Dataset to measure its performance. We used a set of 364 Web services divided into four categories (Platinum, Gold, Silver and Bronze) in which quality is measured by 9 attributes. The experiments and the comparison show the effectiveness of our method for the classification of Web services.

Mots clés : Web service, WSDL, classification, SVM (support vector machine), SLS (stochastic local search), feature selection, meta-heuristic, optimization.

TABLE DES MATIERES

1. Introduction	5
2. Related work	6
3. The problem of Web services classification	8
3.1. Web services classification	8
4. Background	9
4.1. Support Vector Machine	9
4.2. Meta-heuristic of Stochastic Local Search	9
4.3. K-cross validation	10
5. Presentation of our approach	10
5.1. Representation of a solution of SLS	11
5.2. Algorithm of the proposed approach (SVM+SLS)	11
6. Experimental results	12
6.1. Description of QWS Dataset	13
6.2. Scaling of QWS Dataset	14
6.3. Evaluation criteria	14
6.4. Results obtained	15
6.5. Comparison of SVM with SVM+SLS	16
6.6. Comparison of SVM+SLS with other methods WEKA	17
7. Conclusion	17
8. References	18