



# **IMMM 2016**

The Sixth International Conference on Advances in Information Mining and  
Management

## **DATASETS 2016**

The International Symposium on Challenges for Designing and Using Datasets

May 22 - 26, 2016

Valencia, Spain

## **IMMM 2016 Editors**

Elsa Macias-López, Las Palmas de Gran Canaria University, Spain

Alvaro Suarez, Las Palmas de Gran Canaria University, Spain

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2016) by International Academy, Research, and Industry Association (IARIA)  
Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (2016)

International Academy, Research, and Industry Association (IARIA)  
412 Derby Way  
Wilmington, DE 19810

Phone: (408) 893-6407  
Fax: (408) 527-6351

[petre@iaria.org](mailto:petre@iaria.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## **IMMM 1: INFORMATION MINING AND MANAGEMENT**

<b>Semi-supervised Learning in the Framework of Data Multiple 1-D Representation</b> .....	1
<i>Jianzhong Wang</i>	
<b>Onto-Traffic: A Semantic Traffic Analysis Tool based on GPS Data for Smart-Cities</b> .....	5
<i>Juan J. Sanchez-Escobar, Liliana I. Barbosa-Santillan, Luis F. Barbosa-Santillan, Fatemeh G. Nasri-Shandiz, Gabriel A. Leon-Paredes</i>	

## **IMMM 2: TYPE OF INFORMATION MINING**

<b>Using Recurrent Boltzmann Machines in the Detection of Process Drifts Using Several Process Mining Perspectives</b> .....	9
<i>Alessandro Berti</i>	
<b>Machine Learning in Cloud Environments Considering External Information</b> .....	11
<i>Matthias Lerner, Stefan Frey, Christoph Reich</i>	
<b>Automatic City Knowledge Discovery from Internet Resources</b> .....	18
<i>Nazanin Firoozeh</i>	

## **IMMM 3: DATA PROCESSING**

<b>Log-Modulus for Knowledge Discovery in Databases of Financial Reports</b> .....	26
<i>Duarte Trigueiros, Carolina Sam</i>	
<b>The Mining and Analysis of Data with Mixed Attribute Types</b> .....	32
<i>Edward Wakelam, Neil Davey, Yi Sun, Amanda Jefferies, Parimala Alva, Alexander Hocking</i>	
<b>Practical Application of the Data Preprocessing Method for Kohonen Neural Networks in Pattern Recognition Tasks</b> .....	38
<i>El Khatir Haimoudi, Loubna Cherrat, Otman Abdoun, Mostafa Ezziyyani</i>	
<b>Author Index</b>	