

ISSN 0972 - 9038

I
J
C
S
A

International Journal of Computer Science & Applications

VOLUME 11, ISSUE 3

DECEMBER 2014



Editor-in-Chief
Rajendra Akerkar



Published by
Technomathematics Research Foundation, India

International Journal of Computer Science & Applications



Editorial Office: Technomathematics Research Foundation,
204/17 Kh, New Shahupuri, Kolhapur 416001, India.
E-mail: *editor@tmrfindia.org*

Copyright © 2014 by Technomathematics Research Foundation

International Journal of Computer Science & Applications (ISSN 0972 – 9038) is high quality electronic journal published by Technomathematics Research Foundation, Kolhapur, India.

The www-site of IJCSA is <http://www.tmrfindia.org/ijcsa.html>

IJCSA

All rights reserved. This journal issue or parts thereof may not be reproduced in any form or by any means, electrical or mechanical, including photocopying, recording or any information storage and retrieval system now known or to be invented, without written permission from the copyright owner.

Permission to quote from this journal is granted provided that the customary acknowledgement is given to the source.



EDITORIAL BOARD

Advisory Editor: Douglas Comer, *Purdue University, USA*

Editor-in-Chief: Rajendra Akerkar, *Technomathematics Research Foundation, India*
Western Norway Research Institute, Norway

Associate Editors

Costin Badica, University of Craiova, Craiova, Romania
 Patrick Brézillon, University Pierre and Marie Curie (UPMC), France
 Will Browne, Victoria University of Wellington, New Zealand
 Lenka Carr-Motyckova, Palacky University, Czech Republic
 Barbara Catania, Università di Genova, Italy
 Jianer Chen, Texas A&M University, Texas, USA
 Daoud S Daoud, Eastern Mediterranean University, Cyprus
 Yuh-Jong Hu, National Chengchi University, Taipei, Taiwan (R.O.C.)
 Ivan Jelínek, Czech Technical University in Prague, Czech Republic
 Jason Jung, Yeungnam University, S. Korea
 Peter Kacsuk MTA SZTAKI, Hungary
 Osamu Katai, Kyoto University, Sakyo-ku, Kyoto, Japan
 Evangelos Kranakis, Carleton University, Canada
 Roger RN. Nkambou, Université du Québec à Montréal, Canada
 Hans Juergen Ohlbach, Ludwig-Maximilians-Universität, Germany
 Parag C. Pendharkar, Pennsylvania State University, Harrisburg, USA
 Vijay Raghavan, University of Louisiana at Lafayette, USA
 Chunming Rong, University of Stavanger, Stavanger, Norway
 Priti Srinivas Sajja, Sardar Patel University, India
 Cliff A. Shaffer, Virginia Tech, Blacksburg, USA

Council of Editors

Stuart Aitken University of Edinburgh, UK
 JF Baldwin University of Bristol, UK
 Pavel Brazdil LIACC/FEP, University of Porto, Portugal
 Jacques Calmet Universität Karlsruhe Germany
 David Camacho Universidad Autonoma de Madrid, Spain
 K. V. Dinesha IIIT, Bangalore, India
 Hai-Bin Duan Beihang University, P. R. China
 Maria Ganzha IBS PAN and University of Gdansk, Poland
 Henry Hexmoor Southern Illinois University, U.S.A.
 Huan Liu Arizona State University, USA
 Marcin Paprzycki IBS PAN and WSM, Poland
 Dana Petcu Western University of Timisoara, Romania
 Sugata Sanyal Tata Institute of Fundamental Research, India
 Ivan Bruha McMaster University, Canada
 David Hung-Chang Du University of Minnesota, USA
 Yakov I. Fet Russian Academy of Sciences, Russia
 S. K. Gupta IIT, New Delhi, India
 Ray Jarvis Monash University, Victoria, Australia
 Pawan Lingras Saint Mary's University, Halifax, Canada
 Pericles Loucopoulos UMIST, Manchester, UK
 C. R. Muthukrishnan Indian Institute of Techno., Chennai, India
 Shahram Rahimi Southern Illinois University, Illinois, USA
 Dharmendra Sharma University of Canberra, Australia
 José M. Valls Ferrán Universidad Carlos III, Spain
 Krzysztof Wecl The Poznan University of Economics, Poland



CONTENTS (Vol. 11, No. 3, December 2014)

EDITORIAL

iii

A Semantic-Enhanced Quality-based Approach to Handling Data Sources in Enterprise Service Bus

1-20

Trinh Hoang Nguyen, Kamyar Rasta, Yohanes Baptista Daerianto Trinugroho, Andreas Prinz

Linked Data Connections with Emerging Information Technologies: A Survey

21-44

Hele-Mai Haav

Machine Learning Techniques for Predicting Hospital Length of Stay in Pennsylvania Federal and Specialty Hospitals

45-56

Parag C. Pendharkar, Hitesh Khurana

Ontologies of Time: Review and Trends

57-115

Vadim Ermolayev, Sotiris Batsakis, Natalya Keberle, Olga Tatarintseva, Grigoris Antoniou

Analytics on Big Aviation Data: Turning Data into Insights

116 –127

Rajendra Akerkar



Editorial (Vol. 11, No. 3, December 2014)

It gives me great pleasure to write this editorial for 1st volume of the special 10th anniversary issue of International Journal of Computer Science & Education (IJCSA). My association with the editorial team of IJCSA started in end of 2003 when we have decided to publish online free access journal. At that time, the journal looked quite different visually from what it does today, as the journal was not formatted properly but instead produced from camera-ready manuscripts submitted by the authors. It was quite usual to see at least 3 or 4 font types (and sizes!) in one single issue of the journal. Quality-wise, the journal was by no means less superior than it is now, however. Over the past 10 years, the journal has maintained its status as one of the premier online journals in general computer science. Many positive changes have occurred to the journal and the impact factor of the journal has also been on the continuous rise.

As Editor-in-Chief of the journal, I was also blessed by enthusiastic assistance of associate editors, and many other individuals for reviewing manuscripts for the journal. With an efficient editorial team and with the support of TMRF staff, the authors enjoy the speedy publication they deserve.

I take this opportunity to thank all of them. The 10th anniversary celebrates a successful dissemination of archival research in computer science, technology, and engineering.

Rajendra Akerkar
Editor-in-Chief, IJCSA