

INFO COMP

Journal of Computer Science

Ministério da Educação
Ministro: Fernando Haddad
Reitor: Antônio Nazareno Guimarães Mendes
Vice-Reitor: Elias Tadeu Fialho
Pró-Reitora de Pesquisa: Édila Vilela de Resende Von Pinho

Editora UFLA
Diretoria Executiva: Renato Paiva (Diretor)
Elias Tadeu Fialho
Carlos Alberto da Silva

VOLUME 8 – N.4 – 2009

Editorial Board

Editor-in-Chief

Luiz Henrique Andrade Correia, UFLA, Brazil

Executive Editor

Cláudio Fabiano Motta Toledo, UFLA, Brazil
Heitor Augustus Xavier Costa, UFLA, Brazil

Scientific Editors

Cláudio Fabiano Motta Toledo, UFLA, Brazil
Horácio Hideki Yanasse, INPE, Brazil
João M. R. da S. Tavares, FEUP, Portugal
Muthu Ramachandran, Leeds Metr. Univ., UK
Gabriel Paillard, UFC, Brazil
Plínio de Sá Leitão Júnior, UFG, Brazil
Rudini Menezes Sampaio, UFC, Brazil

Associate Editors

Abdelmalek Amine, Univ. Djillali Liabes-Sidi, Algeria
Adelmo Cechin, UNISINOS, Brazil
Adolfo Gustavo Serra Seca Neto, UTFPR, Brazil
Adriana Giret, UPV, Spain
Alceu Britto Jr., PUC/PR, Brazil
Alessandra Alaniz Macedo, USP, Brazil
Alessandro Marchetto IRST, Italy
Alexandre Plastino, UFF, Brazil
Alice Kozakevicius, UFSM, Brazil
Alvaro Rocha, Universidade Fernando Pessoa, Portugal
Anderson de Rezende Rocha, Unicamp, Brazil
André Luiz Zambalde, UFLA, Brazil
Andre Zanki Cordenonsi, UFSM, Brazil
Anita Fernandes, UNIVALI, Brazil
Anselmo A. Montenegro UFF, Brazil
Anselmo C. Paiva, UFMA, Brazil
Antonio Maria Pereira de Resende, UFLA, Brazil
Antonio Pedro Timoszczuk, USP, Brazil
Antônio Ribeiro, European Commission, Italy
Arnaldo de Albuquerque, UFMG, Brazil
Aruna Ranganath, Bhoj Reddy Eng.Col.for Women, India
Ash Mohammad Abbas, Aligarh Muslim University, India
Aswani Kumar Cherukuri, VIT University, India
Bruno de Oliveira Schneider, UFLA, Brazil
Carlos de Castro Goulart, UFV, Brazil
Cassio Vinicius Serafim Prazeres, UNIFACS, Brazil

Claudio Cesar de Sá, UESC, Brazil
Claudio F. M. Toledo, UFLA, Brazil
Claudio R. Jung, UNISINOS, Brazil
Cristiano Maciel, UFF, Brazil
Daniel Mesquita, CEITEC, Brazil
Daniel Moura, FEUP, Portugal
Daniel Pires, Faculdades COC, Brazil
David Menotti, UFOP, Brazil
Deepak Dahiya, ITM Gurgaon, India
Eder Mateus Nunes Gonçalves, FURG, Brazil
Elijah Blessing Rajsingh, Karunya University, India
Elisa Huzita, UEM, Brazil
Fábio Henrique Viduani Martinez, UFMS, Brazil
Fábio Levy Siqueira, USP, Brazil
Fatima L. S. Nunes, USP, Brazil
Fernando Koch, University of Utrecht, Netherlands
Fernando Santos Osório, USP, Brazil
Frank José Affonso, UNICEP, Brazil
Giovani Rubert Librelotto, UFSM, Brazil
Heitor Augustus Xavier Costa, UFLA, Brazil
Hernan Astudillo, Univ. Tec. Federico Santa Maria, Chile
Hyggo Almeida, UFCG, Brazil
Ilda Reis, FEUP, Portugal
Ildeberto Aparecido Rodello, USP, Brazil
Jacques D. Brancher, UEL, Brazil
João Carlos de Moraes Morselli Jr., PUC-Poços, Brazil
João Carlos Giacomini, UFLA, Brazil
João Manuel R. S. Tavares, Univ. do Porto, Portugal
Johan M. Sharif, Swansea University, UK
Jorge Martinez-Gil, University of Malaga, Spain
Jorge Rady Almeida Junior, USP, Brazil
José Fernando Rodrigues Júnior, UFSCar, Brazil
José Luís Braga, UFV, Brazil
Kalinka Regina Lucas Jaquie Castelo Branco, USP, Brazil
Kelly Christine Correa Silva, ILTC, Brazil
Leonardo Gresta Paulino Murta, UFF, Brazil
Luciana A. F. Martimiano, UEM, Brazil
Luciano José Senger, UEPG, Brazil
Luiz Camolesi Jr., Unicamp, Brazil
Luiz Carlos Begosso, FEMA, Brazil
Luiz Eduardo G. Martins, UNIMEP, Brazil
Luiz Henrique Andrade Correia, UFLA, Brazil
Marcio Nunes Miranda, UFAL, Brazil
Marco Aurelio Gerosa, USP, Brazil
Marco Tulio Valente, UFMG, Brazil
Marcos A. Cavenaghi, UNESP, Brazil

Maria Istela Cagnin, UFMS, Brazil
Mário Meireles Teixeira, UFMA, Brazil
Michel S. Soares, Delft University of Technology, Brazil
Miguel A. Salido, UPV, Spain
Muthu Ramachandran, Leeds Metr. Univ, UK
Nandamudi Vijaykumar, LAC-INPE, Brazil
Neeraj K. Nehra, Shri Mata Vaishno Devi Univ., India
O. P. Gupta, Punjab Agricultural University, India
Odemir Bruno, USP, Brazil
Omar Andres Carmona Cortes, CEFET/MA, Brazil
Oswaldo Carvalho, UFMG, Brazil
Paulo Eduardo Ambrósio, UESC, Brazil
Paulo Sergio Lopes de Souza, USP, Brazil
Plínio Sá Leitão Júnior, UFG, Brazil
Priti Sajja, Sardar Patel University, India
Ranjit Biswas, Institute of Tech. & Management, India
Raquel O. Prates, UFMG, Brazil
Reghunadhan Rajesh, Bharathiar University, India
Renata Porto Vanni, USP, Brazil
Renato de F. B. Neto, Innolution Sist.de Inf.Ltda., Brazil
Ricardo Terra, UFMG, Brazil
Ricardo da Silva Torres, Unicamp, Brazil
Roberta Vilhena, UFAL, Brazil
Rodrigo Fernandes de Mello, USP, Brazil
Rodrigo O. Plotze, USP, Brazil
Rodrigo Paes, UFAL, Brazil
Roger Pizzato Nunes, UFRG, Brazil
Rogéria Cristiane Gratao Souza, UNESP, Brazil
Rosângela A. Delloso Penteado, UFSCar, Brazil
Rudini Menezes Sampaio, UFC, Brazil
Seiji Isotani, Osaka University, Japan
Sergio Campos, UFMG, Brazil
Silvia Castro, Bertagnolli, Brazil
Syed Fawad Mustafa, GUCAS, Republic of China
Teresa Azevedo, Universidade do Porto, Portugal
Udo Fritzsche Jr., PUC-Poços, Brazil
Valter F. Avelino, USP, Brazil
Valter Vieira de Camargo, UFSCar, Brazil
Vicente Julian, Universidad Politéc. de Valencia, Spain
Vitus S. W. Lam, Univ. of Hong Kong, Hong Kong
Yogendra K. Jain (Rajiv Gandhi Tech. Univ., India

Technical Staff

Ariana da Silva Laureado (Secretary)
Daniel Marton Norberto (Secretary)

INFOCOMP – Journal of Computer Science – v.8, n.4 (2009) – Lavras: Universidade Federal de Lavras, 2009.

Anual (1999 - 2003), Semestral (2004), Trimestral (2005 -)

Sumários em Inglês

ISSN 1807-4545

1. Ciência da Computação I.Universidade Federal de Lavras. II. Departamento de Ciência da Computação.

Indexed in:

**INSPEC
Qualis-CAPES**

Solicita-se permuta/Exchange desired Tiragem/Quantity issued per print: 310