IFIP Advances in Information and Communication Technology

445

Editor-in-Chief

A. Joe Turner, Seneca, SC, USA

Editorial Board

Foundations of Computer Science

Jacques Sakarovitch, Télécom ParisTech, France

Software: Theory and Practice

Michael Goedicke, University of Duisburg-Essen, Germany

Education

Arthur Tatnall, Victoria University, Melbourne, Australia

Information Technology Applications

Erich J. Neuhold, University of Vienna, Austria

Communication Systems

Aiko Pras, University of Twente, Enschede, The Netherlands

System Modeling and Optimization

Fredi Tröltzsch, TU Berlin, Germany

Information Systems

Jan Pries-Heje, Roskilde University, Denmark

ICT and Society

Diane Whitehouse, The Castlegate Consultancy, Malton, UK

Computer Systems Technology

Ricardo Reis, Federal University of Rio Grande do Sul, Porto Alegre, Brazil

Security and Privacy Protection in Information Processing Systems

Yuko Murayama, Iwate Prefectural University, Japan

Artificial Intelligence

Tharam Dillon, Curtin University, Bentley, Australia

Human-Computer Interaction

Jan Gulliksen, KTH Royal Institute of Technology, Stockholm, Sweden

Entertainment Computing

Matthias Rauterberg, Eindhoven University of Technology, The Netherlands

IFIP - The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- Open conferences;
- Working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is about information processing may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

Hongxiu Li Matti Mäntymäki Xianfeng Zhang (Eds.)

Digital Services and Information Intelligence

13th IFIP WG 6.11 Conference on e-Business, e-Services, and e-Society, I3E 2014 Sanya, China, November 28-30, 2014 Proceedings



Volume Editors

Hongxiu Li
Matti Mäntymäki
University of Turku
Turku School of Economics
Rehtorinpellonkatu 3, 20520 Turku, Finland
E-mail: {hongxiu.li, matti.mantymaki}@utu.fi

Xianfeng Zhang Hainan Normal University School of Information Science and Technology No. 99 Longkun South Road, Haikou, 571158, China E-mail: xfzhang@gmail.com

ISSN 1868-4238 e-ISSN 1868-422X ISBN 978-3-662-45525-8 e-ISBN 978-3-662-45526-5 DOI 10.1007/978-3-662-45526-5 Springer Heidelberg New York Dordrecht London

Library of Congress Control Number: 2014953521

© IFIP International Federation for Information Processing 2014

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed. Exempted from this legal reservation are brief excerpts in connection with reviews or scholarly analysis or material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Duplication of this publication or parts thereof is permitted only under the provisions of the Copyright Law of the Publisher's location, in ist current version, and permission for use must always be obtained from Springer. Permissions for use may be obtained through RightsLink at the Copyright Clearance Center. Violations are liable to prosecution under the respective Copyright Law.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

While the advice and information in this book are believed to be true and accurate at the date of publication, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

Since its inception in 1998, the I3E Conference has brought together researchers and practitioners of all aspects of the e-world. The I3E conference focuses on e-business, e-services, and e-society. The I3E conference is truly multi disciplinary covering areas from computer science to information systems and service science. The 2014 I3E conference was the 13th consecutive I3E conference and the second time the conference was organized in China.

The theme of the 2014 I3E conference was "Digital Services and Information Intelligence." Services contribute more than 60% of GDP globally (OECD) and have become a major source of economic growth. The economic role of services will continue to grow in developing economies such as China, India, and Brazil. As pointed out by Vargo and Lusch (2004; 2008), "All economies are service economies." The shift of consumers and enterprise personnel from users to cocreators of value calls for a re-evaluation of the existing design and development approaches, methodologies, and tools to create and distribute services. The second component of the conference theme, "Information Intelligence," points out the importance of developing processes and approaches to effectively manage big data and the associated analytics to turn data into intelligence, and to identify ways to measure the benefits derived from using and analyzing big data at individual, organizational, and societal levels.

As a result, digital services and informational intelligence constitute an umbrella that covers the increasing prevalence of integrating Internet, enterprise applications, user experience, networking, and mobile service demands to create new and enhanced services. The global trend of focusing on service-related activities in all industries pushes the frontier of service innovation. Creating digital services that can make a global impact calls for an understanding of the economic, technical, and social aspects of service development and innovation.

Making a successful conference requires resources and commitment. We would like to thank the authors for their submissions. We also wish to thank the reviewers for ensuring the academic standard of the conference. We wish to extend our thanks to Hainan Normal University for hosting the conference and the keynote speakers, Professor Craig Standing, Professor Jari Salo, Professor Helge Hoivik, and Mr. Yao Chen, for their contributions to the conference. Finally, we would like to thank everyone involved in organizing the conference.

The conference received financial support from the National Science Foundation of China, the International Federation for Information Processing (IFIP),

VI Preface

and the Finnish Foundation of Economic Education (Liikesivistysrahasto). This generous support played an important role in making the $2014~\mathrm{I3E}$ a successful, internationally renowned scientific venue.

We hope you enjoy reading the conference proceedings.

September 2014

Xianfeng Zhang Hongxiu Li Matti Mäntymäki Jari Salo

Organization

General Co-chairs

Reima Suomi University of Turku, Finland Lihua Wu Hainan Normal University, China

Steering Committee

Winfried Lamersdorf University of Hamburg, Germany

Wojciech Cellary Poznan University of Economics, Poland

Matti Mäntymäki University of Turku, Finland

Program Committee Co-chairs

Hongxiu Li University of Turku, Finland
Matti Mäntymäki University of Turku, Finland
Jari Salo University of Oulu, Finland
Xianfeng Zhang Hainan Normal University, China

General Secretaries

Xianfeng Zhang Hainan Normal University, China Hongxiu Li University of Turku, Finland

Honorary Local Organizing Chair

Changri Han Hainan Normal University, China

Local Organizing Chairs

Shengquan Ma
Chun Shi
Hainan Normal University, China
Hainan Normal University, China
Bin Wen
Hainan Normal University, China

Financial Chair

Haiyan Fu Hainan Normal University, China

Publications Chair

Yuping Zhou Hainan Normal University, China

Technical Support Chair

Jianping Feng Hainan Normal University

Contact Coordinator

Haixia Long Hainan Normal University, China

Organizing Committee

Caixia Chen

Xiaowen Liu

Hainan Normal University, China
Yan Lv

Hainan Normal University, China
Hainan Normal University, China
Xiao Shen

Hainan Normal University, China
Xiangjun Wang
Hainan Normal University, China
Yu Zhang
Hainan Normal University, China
Junyu Zhang
Hainan Normal University, China

I3E 2014 Keynote Speakers

Jari Salo University of Oulu, Finland Craig Standing Edith Cowan University, Australia

Helge Hoivik Oslo and Akershus University College, Norway Yao Chen Hainan Tourism Development Commission,

China

I3E 2014 Program Committee

Esma Aimeur University of Montreal, Canada

Joao Paulo Almeida Federal University of Espírito Santo, Brazil Hernán Astudillo Universidad Técnica Federico Santa María,

Chile

Khalid Benali Loria - Nancy Université, France Salima Benbernou Université Paris Descartes, France

Djamal Benslimane Lyon 1 University, France Markus Bick ESCP-EAP Europäische

Wirtschaftshochschule Berlin, Germany

Melanie Bicking University of Koblenz-Landau, Germany

Gérôme Canals Ioanna Constantiou Bruno Defude Linfeng Dong Georgios Doukidis

Claude Godart
Americo Nobre Goncalves
Ferreira Amorim
Adam Grzech
Qiang Guo
Haiyan Fu
Xiumei Hao

Tomasz Janowski Marijn Janssen

Tao Hu

Jonna Järveläinen Atsushi Kanai Ranjan Kini Dennis Kundisch Winfried Lamersdorf

Hongxiu Li Yong Liu Haixia Long Jose Machado Tiziana Margaria Haris Mouratidis Jani Merikivi Jose Neves

Andreas Oberweis Harri Oinas-Kukkonen

Boissier Olivier Hervé Panetto Olivier Perrin Nineta Polemi Jinming Qiu Jari Salo

Florence Sedes Santosh Shrivastava

Zhaohao Sun

Loria - Nancy University, France

Copenhagen Business School, Denmark

Telecom SudParis, France Hainan University, China

Athens University of Economics and Business,

Greece Loria, France

Faculdade Integrada do Recife, Brazil Wrocław University of Technology, Poland

Hainan University, China Hainan Normal University, China Shangdong University, China Hainan University, China UNU-IIST, Macau

Delft University of Technology,

The Netherlands

University of Turku, Finland HOSEI University, Japan

Indiana University Northwest, USA University of Paderborn, Germany University of Hamburg, Germany University of Turku, Finland University of Hamburg, Germany Hainan Normal University, China Universidade do Minho, Portugal University Limerick, Ireland University of East London, UK Aalto University, Finland

Universidade do Minho, Portugal Universität Karlsruhe, Germany University of Oulu, Finland ENS Mines Saint-Etienne, France Nancy University, CNRS, France

Loria, France

University of Piraeus, Greece Shangdong University, China University of Oulu, Finland

I.R.I.T. Paul Sabatier University, France

Newcastle University, UK University of Ballarat, China

X Organization

Herve Verjus Université de Savoie - LISTIC - Polytech'Savoie, France

Hans Weigand Tilburg University, The Netherlands

Robert Woitsch BOC, Austria
Jun Xue Xi'an Universi

Xi'an University of Posts and Telecommunications, China

Hiroshi Yoshiura University of Electro-Communications, Japan

Steffen Zimmermann University of Innsbruck, Austria
Xianfeng Zhang Hainan Normal University, China
Yu Zhang Hainan Normal University, China

I3E 2014 Conference Organizers





Hainan Normal University, China

University of Turku, Finland

I3E 2014 Conference Sponsors



International Federation for Information Processing

Nati



National Natural Science Foundation of China



Hainan Province Computer Federation eBEREA

e-Business Education and Research Network for Euro-Asian Collaboration e 商务 www.eccn.net.cn

e-Commerce Committee of China Information Economics Society

Table of Contents

Digital Services

Customer is King? A Framework to Shift from Cost- to Value-Based Pricing in Software as a Service: The Case of Business Intelligence Software	1
Weibo or Weixin? Gratifications for Using Different Social Media	14
A Bibliometric Analysis of Social Media Research from the Perspective of Library and Information Science	23
Understanding the Influence of Electronic Word-of-Mouth on Outbound Tourists' Visit Intention	33
The Role of Trust towards the Adoption of Mobile Services in China: An Empirical Study	46
The Use of Lean Principles in IT Service Innovation: Insights from an Explorative Case Study	58
Design and Implementation of Enterprise Office Management System Based on PHP	70
E-Loyalty Building in Competitive E-Service Market of SNS: Resources, Habit, Satisfaction and Switching Costs Yong Liu, Shengli Deng, and Feng Hu	79
Rays of Uniqueness – Cloud in Multinational Organisations: Challenge to Traditional Business System Alignments	91
An Improved Signal Subspace Algorithm for Speech Enhancement Xuzheng Dai, Baoxian Yu, and Xianhua Dai	104
The Key Algorithm of the Sterilization Effectiveness of Pulsating Vacuum Sterilizer	115

Study on Driving Forces of UGC Adoption Behavior in Service Industry: A Platform Feature Based Model	123
Quantum-Behaved Particle Swarm Optimization Based on Diversity-Controlled	132
Modified K-means Algorithm for Clustering Analysis of Hainan Green Tangerine Peel	144
Digital Society	
Perceived Significance of Improved Patient Data and Healthcare Services in the Formation of Inter-organizational Healthcare IT Governance	151
TAM and E-learning Adoption: A Philosophical Scrutiny of TAM, Its Limitations, and Prescriptions for E-learning Adoption Research	164
The Overall Design of Digital Medical System under the Network Environment	170
Improving Physical Activity and Health with Information Technology	18
A Novel Regional Cloud Digital Library Network Based on Mobile Ad Hoc Networks	19
Process Design of Digital Platform for China's Industrial Investment Fund	204
Data Mining Challenges in the Management of Aviation Safety Olli Sjöblom	213
Function Inverse P-sets and the Hiding Information Generated by Function Inverse P-information Law Fusion	224

Digital	Business
8	_ 0.0111000

Online Hotel Review Analysis	238
Research on Non-verbal Graphic Symbol Communication of Cross-Border e-Commerce	251
How to Set and Manage Your Network Password: A Multidimensional Scheme of Password Reuse	264
The Analysis of Advertising Pricing Based on the Two-Sided Markets Theory in Social Network	277
Enterprise's Online Trust Crisis Management: A Life Cycle View Yitang Zeng and Chunhui Tan	288
Young People Purchasing Virtual Goods in Virtual Worlds: The Role of User Experience and Social Context	303
Insight into the Construction of Occupational Classification in E-Commerce in China	315
Investigating Key Antecedents of Customer Satisfaction in B2B Information Service Firms	327
A Research of Taobao Cheater Detection	338
Analysis of Two Methods of Systemic Risk Measurement Based on Option	346
Author Index	359