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Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing

Studies in Computational Intelligence, Volume 209

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Vol. 209. Roger Lee and Naohiro Ishii (Eds.)
Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing, 2009
ISBN 978-3-642-01202-0

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Springer

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ISBN 978-3-642-01202-0 e-ISBN 978-3-642-01203-7

DOI 10.1007/978-3-642-01203-7

Studies in Computational Intelligence ISSN 1860949X

Library of Congress Control Number: Applied for

Typeset & *Cover Design:* Scientific Publishing Services Pvt. Ltd., Chennai, India.

Printed in acid-free paper

9 8 7 6 5 4 3 2 1

springer.com

Preface

The purpose of the 10th ACIS International Conference on Software Engineering Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD 2009), held in Daegu, Korea on May 27–29, 2009, the 3rd International Workshop on e-Activity (IWEA 2009) and the 1st International Workshop on Enterprise Architecture Challenges and Responses (WEACR 2009) is to aim at bringing together researchers and scientist, businessmen and entrepreneurs, teachers and students to discuss the numerous fields of computer science, and to share ideas and information in a meaningful way. Our conference officers selected the best 24 papers from those papers accepted for presentation at the conference in order to publish them in this volume. The papers were chosen based on review scores submitted by members of the program committee, and underwent further rounds of rigorous review.

In chapter 1, Igor Crk and Chris Gniady propose a network-aware energy management mechanism that provides a low-cost solution that can significantly reduce energy consumption in the entire system while maintaining responsiveness of local interactive workloads. Their dynamic mechanisms reduce the decision delay before the disk is spun-up, reduce the number of erroneous spin-ups in local workstations, decrease the network bandwidth, and reduce the energy consumption of individual drives.

In chapter 2, Yoshihito Saito and Tokuro Matsuo describe a task allocation mechanism and its performance concerning with software developing. They run simulations and discuss the results in terms of effective strategies of task allocation.

In chapter 3, Wei Liao et al. present a novel directional graph model for road networks to simultaneously support these two kinds of continuous k-NN queries by introducing unidirectional network distance and bidirectional network distance metrics. Experimental results are contrasted with the results existing algorithms including IMA and MKNN algorithms.

In chapter 4, Liya Fan et al. present a self-adaptive greedy scheduling scheme to solve a Multi-Objective Optimization on Identical Parallel Machines. The primary objective is to minimize the makespan, while the secondary objective is to make the

schedule more stable. To demonstrate their claim they provide results derived from their experimentation.

In chapter 5, Tomohiko Takagi et al. show that a UD (Usage Distribution) coverage criterion based on an operational profile measures the progress of software testing from users' viewpoint effectively. The goal of the work is to describe the definitions and examples of UD coverage.

In chapter 6, Vahid Jalali and Mohammad Reza Matash Borujerdi propose a method of semantic information retrieval that can be more concise based on adding specially selected extra criterion. Using the results from their studies they compare the effectiveness against that of keyword based retrieval techniques.

In chapter 7, Tomas Bures et al. perform a study on the transparency of connectors in a distributed environment. They evaluate the feasibility of making the remote communication completely transparent and point out issues that prevent the transparency and analyze the impact on components together with possible tradeoffs.

In chapter 8, Dong-sheng Liu and Wei Chen propose an integrated model to investigate the determinants of user mobile commerce acceptance on the basis of innovation diffusion theory, technology acceptance model and theory of planned behavior considering the important role of personal innovativeness in the initial stage of technology adoption. The proposed model was empirically tested using data collected from a survey of MC consumers.

In chapter 9, Wenying Feng et al. demonstrate a cache prefetching method that builds a Markov tree from a training data set that contains Web page access patterns of users, and make predictions for new page requests by searching the Markov tree. Using simulations based on Web access logs they are able to demonstrate the effectiveness of this methodology.

In chapter 10, Haeng-Kon Kim and Roger Y. Lee design and implement a web-using mining system using page scrolling to track the position of the scroll bar and movements of the window cursor regularly within a window browser for real-time transfer to a mining server and to analyze user's interest by using information received from the analysis of the visual perception area of the web page.

In chapter 11, WU Kui et al. propose a new method for similarity computation based on Bayesian Estimation. They implement analyze the performance using WordNet.

In chapter 12, Ghada Sharaf El Din et al. use a predictive modeling approach to develop models using political factors, social-economic factors, degree of development, etc. to predict an index derived from the institutional and normative aspects of democracy.

In chapter 13, Mohsen Jafari Asbagh, Mohsen Sayyadi, Hassan Abolhassani propose a step in processing blogs for blog mining. They use a shallow summarization method for blogs as a preprocessing step for blog mining which benefits from specific characteristics of the blogs including blog themes, time interval between posts, and body-title composition of the posts. We use our method for summarizing a collection of Persian blogs from PersianBlog hosting and investigate its influence on blog clustering.

In chapter 14, Chia-Chu Chiang and Roger Lee propose an approach using formal concept analysis to extract objects in a non-object oriented programs. Their research is a collaborative work in which they are trying to draw the benefit by using formal concept analysis and apply the analysis results to the field of software maintenance.

In chapter 15, Tokuro Matsuo and Norihiko Hatano employ qualitative methods in place of quantitative methods for flood analysis. Their qualitative simulation model is constructed as a causal graph model. This system is an attempt to better suit this flood analysis for naïve users and novices.

In chapter 16, Oliver Strong et al. propose a simple technique of UML markup that would help bridge the gaps of UML illiteracy and diagram ambiguity. This is done by using a simple textual markup inscribed at the XML level; they are able to demonstrate with a simple test case the ease and verbosity of transparent markup applied to UML diagrams.

In chapter 17, Jae-won Lee et al. propose a new methodology for solving the item sparsity problem by mapping users and items to a domain ontology. Their method uses a semantic match with the domain ontology, while the traditional collaborative filtering uses an exact match to find similar users. They perform several experiments to show the benefits of their methods over those of exact matching.

In chapter 18, Haeng-Kon Kim works towards creating a system that allows purchasers to discriminate between software based on its tested suitability. To do this he builds a system that purchasers can effectively select a software package suitable for their needs, using quality test and certification process for package software and developing a Test Metric and application method.

In chapter 19, Olga Ormandjieva et al. formalize the EI modeling and performance control in a single formal framework based on representational theory of measurement and category theory.

In chapter 20, Myong Hee Kim and Man-Gon Park propose Bayesian statistical models for observed active and sleep times data of sensor nodes under the selected energy efficient CSMA contention-based MAC protocols in consideration of the system effectiveness in energy saving in a wireless sensor network. Accordingly, we propose Bayes estimators for the system energy saving effectiveness of the wireless sensor networks by use of the Bayesian method under the conjugate prior information.

In chapter 21, Chang-Sun Shin et al. propose a system for the management of environmental factors in livestock and agriculture industries. They provide a three layer system that makes use of natural energy sources to monitor environmental factors and provide a reporting functionality.

In chapter 22, Jeong-Hwan Hwang et al. expand the capabilities of Ubiquitous-Greenhouse by creating a mesh network which is used to overcome the problem of sensor node energy utilization. They measure the successfulness of this approach in terms of energy consumption and data transmission efficiency.

In chapter 23, Byeongdo Kang and Roger Y. Lee present an architecture style for switching software. They attempt to make switching software more maintainable by suggesting a hierarchical structure based on the characteristics of switching software.

In chapter 24, the final chapter, Roman Neruda studies the problem of automatic configuration of agent collections. A solution combining logical resolution system and evolutionary algorithm is proposed and demonstrated on a simple example.

It is our sincere hope that this volume provides stimulation and inspiration, and that it will be used as a foundation for works yet to come.

May 2009

Roger Lee
Naohiro Ishii

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