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# Preface

The purpose of the 13th International Conference on Computer and Information Science (SNPD 2012) held on August 8–10, 2012 in Kyoto, Japan was to bring together researchers and scientists, 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 17 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, Kenji Kawamoto et al. In this paper, we evaluated the features used in previous studies while taking into account secular changes to classify normal traffic into the normal category and anomalous traffic into the anomalous category correctly. A secular change in this study is a difference in a feature between the date the training data were captured and the date the test data were captured in the same circumstance. The evaluation is based on the Euclidean distance between the normal codebook or anomalous codebook made by vector quantization and the test data. We report on what causes these secular changes and which features with little or no secular change are effective for malware detection.

In Chapter 2, Hideo Hirose et al. In this paper, we further investigate the prediction accuracy of the tree-GA by comparing the trade-off curve obtained by using the tree-GA with that obtained by using the PRIM (Patient Rule Induction Method) proposed by Friedman and Fisher. We have found that the tree-GA reveals the superiority over the PRIM in some cases.

In Chapter 3, Tomohiko Takagi et al. This paper proposes a novel back-to-back testing framework in which a SVM (support vector machine) classifies its results automatically.

In Chapter 4, *Biplob R. Ray*. In this paper, we propose a lightweight stenographic-based approach to ensure RFID data confidentiality and integrity as well as the recovery of tampered RFID data.

In Chapter 5, *Nazia Zaman* et al. In this paper, we propose a novel approach, which allows a quick increase of throughput by using explicit feedback from routers.

In Chapter 6, *Gongzhu Hu et al.* In this paper, we build multivariate regression models of home prices using a dataset composed of 81 homes. We then applied the maximum information coefficient (MIC) statistics to the observed home values (Y) and the predicted values (X) as an evaluation of the regression models. The results showed very high strength of the relationship between the two variables X and Y.

In Chapter 7, *Tsuyoshi Miyazaki et al.* In this paper, we describe an improvement of the method that detects distinctive mouth shapes from Japanese utterance image sequence.

In Chapter 8, *Chung-Hung Hsieh et al.* In this study, we propose a totally non-contact image-to-patient registration technique using kinect sensor and an ICP-based (Iterative Closest Point-based) registration algorithm which is named WAP-ICP.

In Chapter 9, *Qiming Chen et al.* In this paper We propose the page-flow approach characterized by extending and externalizing the database buffer pool to DCP to allow the producer QE to put query results as data pages (blocks) to the DCP to be retrieved by the consumer QE.

In Chapter 10, *Tomas Kučera et al.* In this paper, we present an algorithm for automated deployment planning of hierarchical component systems. The algorithm incorporates component demands and machine resources in order to maximize performance of deployed applications. We also present an implementation of the algorithm for the SOFA 2 component framework.

In Chapter 11, *Kanu Boku et al.* In this paper, we propose a case-based method for generating emotional synthetic speech by exploiting the characteristics of the maximum amplitude and the utterance time of vowels, and the fundamental frequency of emotional speech.

In Chapter 12, *Yucong Duan et al.* In this paper, we explore data cleaning of very large database with focus on semantic rich data and linked data, from a knowledge management perspective.

In Chapter 13, *Masahide Nakamura et al.* This paper presents a novel service creation environment, called *Sensor Service Binder (SSB)*, which provides a user-friendly interface for creating context-aware services within the HNS. Built on top of the service-oriented HNS, the SSB allows non-expert users to register contexts using the sensors, and to bind the registered context to any operation of the networked appliances.

In Chapter 14, *Masateru Tsunoda et al.* In this paper, we focused risk factors which have strong and stable relationships to cost overrun, and analyzed them using the Sharpe ratio based index. As a result, we identified some risk factors which have relatively strong and stable relationships to cost overrun. After the analysis, we experimentally predicted cost overrun projects by collaborative filtering, using the risk factors as independent variables. The result suggested that cost overrun projects can be predicted by the risk factors.

In Chapter 15, *Kazunori Iwata et al.* In this study, we establish error prediction models at various stages of embedded software development using hybrid methods of self-organizing maps (SOMs) and multiple regression analyses (MRAs). SOMs are a type of artificial neural networks that relies on unsupervised learning.

In Chapter 16, *Tomokazu Arita* et al. In this paper, we introduce attribute graph grammars for labeled grid graphs, and propose their application to generating tabular forms representing program specification forms with grid structures, such as two-dimensional arrays.

In Chapter 17, *Seiichi Serikawa* et al. In this paper, we proposed a new fusion rule for multimodal medical images based on MSFLCT.

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.

August 2012

Teruhisa Hochin  
Nobuhiro Inuzuka  
Tokuro Matsuo

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