# 2013 International Symposium on Biometrics and Security Technologies

# (ISBAST 2013)

## Chengdu, Sichuan, China
## 2-5 July 2013

IEEE

**IEEE Catalog Number:** CFP1359D-POD
**ISBN:** 978-1-4673-5313-7

# 2013 International Symposium on Biometrics and Security Technologies

# ISBAST 2013

## Table of Contents

**Message from General Chair** ..... x

**Organizing Committee** ..... xii

**Program Committee** ..... xvi

**Reviewers** ..... xix

---

## Session 1A

A Blog Clustering Approach Based on Queried Keywords ..... 1
*Yi-Hui Chen, Eric Jui-Lin Lu, and Tsai-Ying Wu*

Automatic ROI Segmentation in B-Mode Ultrasound Image for Liver Fibrosis Classification ..... 10
*Nan-Han Lu, Chung-Ming Kuo, and Hueisch-Jy Ding*

Application of Network Analyzer Based on the Automatic Control of LabVIEW in Radio and Television Test ..... 14
*Kang Jianhua, She Fangyi, Zhang Weidong, and Ping Jie*

Anticipating Dormant Functionality in Malware: A Semantics Based Approach ..... 20
*Muzzamil Noor and Haider Abbas*

## Session 1B

Data Hiding Using Flexible Multi-bit MER ..... 24
*Rong-Jian Chen, Yu-Cha Chen, Jui-Linlai, and Shi-Jinn Horng*

Exploiting Unsupervised Learning in Publish Subscribe System Design ..... 32
*Chyouhwa Chen, Po-Chung Tung, and Wei-Chung Teng*

How to Build an Automated Fingerprint Identification System ..... 40
*Zeeshan-ul-Hassan Usmani, Sarah Irum, Hassan Afzal, and Shahid Mahmud*

Plug-n-Play AFIS Development for Criminal and Civil Applications ..... 48
*Zeeshan-ul-Hassan Usmani, Sarah Irum, Hassan Afzal, and Shahid Mahmud*

## Session 2A

A New Image Watermarking Scheme Using Non-dominated Sorting Genetic Algorithm II ....56
*Jiann-Shu Lee, Fei-Hsiang Huang, and Hsiao-Chen Kuo*

Enhanced Backward Error Concealment for H.264/AVC Videos on Error-Prone Networks ....62
*Ping-Chin Wang and Chow-Sing Lin*

E-Health Design of EEG Signal Classification for Epilepsy Diagnosis ....67
*Chi-Chou Kao*

The Correlation Analysis between Breast Density and Cancer Risk Factor in Breast MRI Images ....72
*Ding-Horng Chen, Yi-Chen Chang, Pai-Jun Huang, and Chia-Hung Wei*

## Session 2B

A Geocasting Forwarding Scheme for Mobile Nodes in VANETs ....77
*Tz-Heng Hsu, Ding-Horng Chen, and Yi-Hsing Tung*

Efficient Implementation of Block Cipher in JCA ....82
*Wu-Chuan Yang, Shyh-Yih Wang, and Shu-Ling Liu*

Design and Implementation of the Travelling Time- and Energy-Efficient Android GPS Navigation App with the VANET-Based A* Route Planning Algorithm ....85
*Ing-Chau Chang, Hung-Ta Tai, Dung-Lin Hsieh, Feng-Han Yeh, and Siao-Hui Chang*

Interactive Multimedia Technology in Case-Based Medical E-Learning ....93
*Zong-Xian Yin, Chyi-Her Lin, and Wei-Cheng Lin*

## Session 3A

An Anonymous Car Rental System Based on NFC ....97
*Jia-Ning Luo, Ming-Hour Yang, and Ming-Chien Yang*

Robust Biometrics Based Three-Factor Remote User Authentication Scheme with Key Agreement ....105
*Xiong Li, Jianwei Niu, Muhammad Khurram Khan, and Junguo Liao*

On Interoperation of Hybrid Cloud ....111
*Johannes K. Chiang, Eric Yen, and Yu-Long Lin*

Authentication, Authorization and File Synchronization in Hybrid Cloud: On Case of Google Docs, Hadoop and Linux Local Hosts ....116
*Johannes K. Chiang, Eric H.-W. Yen, and Yen-Hua Chen*

## Session 3B

Secure Mobile User Authentication and Key Agreement Protocol with Privacy Protection in Global Mobility Networks ....124
*Qi Xie, Mengjie Bao, Na Dong, Bin Hu, and Duncan S. Wong*

Security of Biometrics Using Multimodal Approach ....130
*Abdulhaseeb Ahmed and Hafiz Malik*

New Identity-Based Sequential Aggregate Signature Scheme from RSA ....136
*Jia-Lun Tsai, Nai-Wei Lo, and Tzong-Chen Wu*

Modeling of Contactless Smart Card Protocols and Automated Vulnerability Finding ....141
*Martin Henzl and Petr Hanacek*

## Session 4A

Security Analysis and Enhancement of a Dynamic Identity Based Authentication Scheme Using Smart Cards ....149
*Xiong Li, Jianwei Niu, Muhammad Khurram Khan, and Junguo Liao*

Bitrate-Saving Intra Coding for Depth Video Compression in H.264/MVC Based on D-NOSE Models ....155
*Po-Chun Chang, Kuo-Liang Chung, Wei-Ning Yang, and Yong-Huai Huang*

Personal Threshold in a Small Scale Text-Dependent Speaker Recognition ....162
*Yanling Chen, Erlend Heimark, and Danilo Gligoroski*

Subsampling Based Computation-Aware Motion Estimation ....171
*Chi-Kao Chang, Min-Yuan Fang, I-Chang Jou, Nai-Chung Yang, and Chung-Ming Kuo*

## Session 4B

Sleepy Eye’s Recognition for Drowsiness Detection ....176
*Shinfeng D. Lin, Jia-Jen Lin, and Chin-Yao Chung*

H2T: A Simple Hadoop-to-Twister Translator for Cloud Computing ....180
*Junbo Zhang, Jian-Syuan Wong, Yi Pan, and Tianrui Li*

Precision Enhancement and Performance Evaluation of a CORDIC-Based Tilting Angle Identification Algorithm for Three-Axis Accelerometers ....187
*Wei-Ting Liao, Wen-Yen Lin, Wen-Cheng Cheng, Kin Fong Lei, and Ming-Yih Lee*

Score-Level Fusion in Biometric Verification ....193
*Fawaz Alsaade, Mohammed Zahrani, and Turki Alghamdi*

## Session 5A

Design CAROM Module Used in AES Structure for Sub-byte and Inv-sub-byte Transformation ....198
*Jui-Lin Lai, Kuo-Hung Liao, Yi-Te Lai, and Rong-Jian Chen*

Content-Based Image Retrieval on Reconfigurable Peer-to-Peer Networks ....203
*Chun-Rong Su, Jiann-Jone Chen, and Kai-Lin Chang*

A Novel Non-intrusive User Authentication Method Based on Touchscreen of Smartphones ....212
*Chien-Cheng Lin, Chin-Chun Chang, and Deron Liang*

A Novel Hybrid Multibiometrics Based on the Fusion of Dual Iris, Visible and Thermal Face Images ....217
*Ning Wang, Qiong Li, Ahmed A. Abd El-Latif, Xuehu Yan, and Xiamu Niu*

## Session 5B

Multibit Color-Mapping Steganography Using Depth-First Search ....224
*Hanzhou Wu and Hongxia Wang*

Orientation Range for Transposition According to the Correlation Analysis of 2DPalmHash Code ....230
*Lu Leng, Andrew Beng Jin Teoh, Lu Leng, Ming Li, Lu Leng, Ming Li, and Muhammad Khurram Khan*

Privacy Preserving Frequent Pattern Mining on Multi-cloud Environment ....235
*Chih-Hua Tai, Jen-Wei Huang, and Meng-Hao Chung*

Core-Point Detection on Camera-Based Fingerprint Image ....241
*Fajri Kurniawan, Mohammed S. Khalil, and Muhammad Khurram Khan*

## Session 6A

Cryptanalysis of "A Robust Smart-Card-Based Remote User Password Authentication Scheme" ....247
*Saru Kumari, Muhammad Khurram Khan, Fahad Bin Muhaya, and Rahul Kumar*

Adaptive Non-local Means for Image Denoising Using Turbulent PSO with No-Reference Measures ....251
*Ling-Yuan Hsu, Shi-Jinn Horng, Pingzhi Fan, Hsien-Hsin Chou, Xian Wang, and Minyi Guo*

Protecting Data Privacy and Security for Cloud Computing Based on Secret Sharing ....259
*Ching-Nung Yang and Jia-Bin Lai*

## Session 6B

An Architecture and Application of Cloud-Based Customer Knowledge Management Information Systems ....267
*Jyhjong Lin and Shin-Jer Yang*

Design Role-Based Multi-tenancy Access Control Scheme for Cloud Services ....273
*Shin-Jer Yang, Pei-Ci Lai, and Jyhjong Lin*

Towards Privacy Preserving Multimedia Surveillance System: A Secure Privacy Vault Design ....280
*M. Anwar Hossain and Sk. Md. Mizanur Rahman*

Comparison among Methods of Ensemble Learning ....286
*Shaohua Wan and Hua Yang*

Authentication and Tamper Detection of Digital Holy Quran Images ....291
*Fajri Kurniawan, Mohammed S. Khalil, Muhammad Khurram Khan, and Yasser M. Alginahi*

**Author Index** ....297