## 2013 International Conference on Signal-Image Technology & Internet-Based Systems

### SITIS 2013

#### Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>xx</td>
</tr>
<tr>
<td>SITIS 2013 Editorials</td>
<td>xxi</td>
</tr>
<tr>
<td>Organizing Committees</td>
<td>xxxi</td>
</tr>
<tr>
<td>Keynotes</td>
<td>xlii</td>
</tr>
<tr>
<td>Tutorial</td>
<td>xlv</td>
</tr>
<tr>
<td>Acknowledgement</td>
<td>xlv</td>
</tr>
</tbody>
</table>

### Multimedia Information Retrieval and Applications

- **Query by Humming by Using Scaled Dynamic Time Warping**
  
  By Yunji Kim and Cheong Hee Park
  
  Page: 1

- **An Estimator for Rating Video Contents on the Basis of a Viewer’s Behavior in Typical Home Environments**
  
  By Masaki Takahashi, Simon Clippingdale, Makoto Okuda, Yuko Yamanouchi, Masahide Naemura, and Masahiro Shibata
  
  Page: 6

- **Event Detection and Recognition Using HMM with Whistle Sounds**
  
  By Hiroki Itoh, Tetsuya Takiguchi, and Yasuo Ariki
  
  Page: 14

- **Secret Hiding Mechanism Using QR Barcode**
  
  By Pei-Yu Lin, Yi-Hui Chen, Eric Jui-Lin Lu, and Ping-Jung Chen
  
  Page: 22

- **Fast JPEG Image Retrieval Based on AC Huffman Tables**
  
  By Gerald Schaefer, David Edmundson, and Yoshitaka Sakurai
  
  Page: 26

### Signal and Image Technology (SIT)
SIT Session S1
Fractional Lower Order Moment (FLOM)-Based Adaptive Algorithm with Data-Reusing for Active Noise Control of Impulsive Sources .................................................................31
Muhammad Tahir Akhtar
High-Frequency Restoration Using Deep Belief Nets for Super-resolution .................................................................38
Toru Nakashika, Tetsuya Takiguchi, and Yasuo Ariki
Adaptive Multiscale Retinex for Image Contrast Enhancement ..................................................................................43
Chang-Hsing Lee, Jau-Ling Shih, Cheng-Chang Lien, and Chin-Chuan Han
A Hybrid Method for High Density Salt-and-Pepper Noise Removal ............................................................................51
Kohei Inoue, Kenji Hara, and Kiichi Urahama

SIT Session S2
Studies on the Effectiveness of Multispectral Images for Face Recognition:
Comparative Studies and New Approaches .................................................................................................................58
Hamdi Jamel Bouchech, Sebti Foufou, Andreas Koschan, and Mongi Abidi
A FCM and SURF Based Algorithm for Segmentation of Multispectral Face Images .............................................65
Ahmed Ben Saïd, Sebti Foufou, and Mongi Abidi
Two-Stage Recognition for Printed Thai and English Characters Using Nearest Neighbor and Support Vector Machine ............................................................................................................71
Chayut Wiwatcharakoses and Karn Patanukhom
Urban Road Network Extraction Based on Zebra Crossing Detection from a Very High Resolution RGB Aerial Image and DSM Data ........................................................................................................79
Darlis Herumurti, Keiichi Uchimura, Gou Koutaki, and Takumi Uemura

SIT Session S3
Analysis of Estimation Bias for Direct Frequency Estimators of Complex Sinusoid ..................................................85
Jan-Ray Liao and Shyng Lo
Multiple-Scattering Optical Tomography with Layered Material ..................................................................................93
Toru Tamaki, Bingzhi Yuan, Bisser Raytchev, Kazufumi Kaneda, and Yasuhiro Mukaigawa
On a Shape Adaptive Image Ray Transform ...............................................................................................................100
Ah-Reum Oh and Mark S. Nixon
Proportional Image Enlargement Using Combinations of Scaling and Carving Method ...........................................106
I. Komang Somawirata, Keiichi Uchimura, and Gou Koutaki
SIT Session S4

Design of a Stereoscopic 3D Video Processing System Based on FPGA 3D Formatter in Case of FPR ........................................................... 111

Radosveta Sokullu and Mutlu Aydin

Image Reconstruction from Local Binary Patterns ........................................... 118

B.M. Waller, M.S. Nixon, and J.N. Carter

A Structured Light System Encoding for an Uncalibrated 3D Reconstruction Based on Evolutionary Algorithms ........................................ 124

Claire Bourgeois-République, Albert Dipanda, and Alain Koch

SIT Session S5

Reconstruction of Undersampled Atomic Force Microscopy Images: Interpolation versus Basis Pursuit .................................................. 130

T.L. Jensen, T. Arildsen, Jan Østergaard, and T. Larsen

Improving Speaker Verification Robustness by Front-End Diversity and Score Level Fusion ................................................................. 136

Nassim Asbai, Messaoud Bengherabi, Abderrahmane Amrouche, and Farid Harizi

Adaptive Segmentation of Vessels from Coronary Angiograms Using Multi-scale Filtering ............................................................... 143

Ying-Che Tsai, Hsi-Jian Lee, and Michael Yu-Chih Chen

SIT Session S6

Automatic Extraction of Semantic Action Features ........................................ 148

Tran Thang Thanh, Fan Chen, Kazunori Kotani, and Bac Le

Measurement of Size and Distance of Objects Using Mobile Devices ........ 156

Suraphol Laotrakunchai, Akarapas Wongkaew, and Karn Patanukhom

A Negative Sample Image Selection Method Referring to Semantic Hierarchical Structure for Image Annotation .................................... 162

Shan-Bin Chan, Hayato Yamana, and Shin’ichi Satoh

A New Image Sharing Scheme for Internet Applications in Adverse Environments ................................................................. 168

Chin-Pan Huang, Ping S. Huang, and Shih-Yu Huang

Identity Recognition through Human Gaze Tracking .................................... 173

Ignazio Infantino, Giuseppe Scardino, and Filippo Vella

Internet-Vision Based Vehicle Model Query System Using Eigenfaces and Pyramid of Histogram of Oriented Gradients .................... 179

Thitiphat Anakavej, Aram Kawewong, and Karn Patanukhom
**SIT Session S7**

A Robust Video Super-resolution Based on Adaptive Overlapped Block Motion Compensation .............................................................. Jing Ge, Ju Liu, Chuan Ge, and Xiaohui Yang 187

Color Image Quality Assessment Measure Using Multivariate Generalized Gaussian Distribution .............................................. Mounir Omari, Abdelkaher Ait Abdelouahad, Mohammed El Hassouni, and Hocine Cherifi 195

Motion Estimation in Blurred Frames Using Phase Correlation .......................................................... Sina Firouzi and Chris Joslin 201

Human Tracking based on Particle Filter with Adaptive Local Descriptor .................................................. Sangeun Lee and Keiichi Horio 207


**Web Computing and Applications (WECA)**

**WECA Session S1**

A Novel Challenge into Multimedia Cultural Heritage: An Integrated Approach to Support Cultural Information Enrichment .............................................................. Angelo Chianese, Fiammetta Marulli, Francesco Piccialli, and Isabella Valente 217

Pattern-Based Model Checking for Dynamic Analysis of Workflow Processes with Temporal Constraints .......................................................... Yanhua Du, Wending Zhang, and Wei Tan 225

Unsupervised Knowledge Structuring: Application of Infinite Relational Models to the FCA Visualization .......................................................... Fumiko Kano Glückstad, Tue Herlau, Mikkel N. Schmidt, and Morten Mørup 233


Toward Enhancing Web Accessibility for Blind Users through the Semantic Web ........................................... Bernard Semaan, Joe Tekli, Youssef Bou Issa, Gilbert Tekli, and Richard Chbeir 247

**WECA Session S2**

Efficient Dynamic Service Provisioning over Distributed Resources Using Chord ........................................... Dibyanshu Jaiswal, Sujay Mistry, Arijit Mukherjee, and Nandini Mukherjee 257

Web-Based QoE Measurement Framework .............................................................................................. Wu-Hsiao Hsu, Sheng-Cheng Yeh, Yuh-Pyng Shieh, and Chaur-Heh Hsieh 265
A Cloud Service for End-User Participation Concerning the Internet of Things ......................................................273
Colin Atkins, Keiichi Koyanagi, Takeshi Tsuchiya, Tadashi Miyosawa, Hiroo Hirose, and Hiroaki Sawano

**WECA Session S3**

A Two-Factor and Reader-Undedicated Authentication Scheme with Passive RFID Tags in WLAN .................................................................279
Ya-Fen Chang, Wei-Liang Tai, Shao-Cian Lin, and Ti-Sheng Kwang

Trust Ontology Based on Access Control Parameters in Multi-organization Environments .................................................................285
Khalifa Toumi, Cesar Andrés, and Ana Cavalli

Formal Characterization of Illegal Control Flow in Android System .................................................................293
Mariem Graa, Nora Cuppens-Boulahia, Frédéric Cuppens, and Ana Cavalli

Samiha Ayed, Muhammad Sabir Idrees, Nora Cuppens-Boulahia, Frédéric Cuppens, Mónica Pinto, and Lidia Fuentes

**Workshop on Adaptability and Personalization**

Refinement of Adaptivity by Reflection .................................................................309
Klaus P. Jantke, Hans-Rainer Beick, Yuriy Brovko, and Sebastian Drefahl

An Adaptive System for Optimal Matches between Human Needs and Offers .................................................................317
Takashi Kawabe, Yukiko Yamamoto, Yoshiyuki Mizuno, Yoshitaka Sakurai, and Rainer Knauf

Optimizing University Curricula through Correlation Analysis .................................................................324
Rainer Knauf, Yukiko Yamamoto, Yoshitaka Sakurai, and Kinshuk

Autonomous Distributed GA for Solving Real-Time Combinatorial Problems .................................................................330
Yuuta Kobayashi, Masaki Suzuki, Setsuo Tsuruta, and Yoshitaka Sakurai

A Method to Manage the Precision Difference between Items and Profiles: In a Context of Content-Based Recommender System and Vector Space Model .................................................................337
David Werner and Christophe Cruz

Adaptive Behavior with User Modeling and Storyboarding in Serious Games .................................................................345
Sebastian Arnold, Jun Fujima, Andreas Karsten, and Harald Simeit

Intelligent Route Optimization Technology by Case Based GA .................................................................351
Takaaki Motomura, Masaki Suzuki, Setsuo Tsuruta, and Yoshitaka Sakurai
Workshop on Cultural Information Systems (CIS)

CIS Session S1

“Once Upon a Time”: A Proof of Concept Augmented Reality Collaborative Mobile Application to Discover City Heritage .................................................................358
   Alessandro Bellini, Cinzia Luddi, Simone Naldini, Carlo Ghetti, Emanuele Bellini, 
   and Giovanni Bergamin

Project for the Cataloguing of the Antique Moulds of the Ginori Factory at Doccia ....................................................364
   Rita Balleri, Lucia Ciofi, Sergio Di Tondo, Monica Gherardelli, and Giulia Adembri

Digital Archive and Exhibiting Methods of a Buddhist Ceremonial Procession .....................................................372
   Asako Soga, Yusuke Niwa, Masahito Shiba, and Yoshihiro Okada

A Stereoscopic CG System with Motion Parallax and Its Digital Contents for Science Museums ..........................................................378
   Shinji Mizuno, Mami Tsukada, and Yuto Uehara

Making a Hands-On Display with Augmented Reality Work at a Science Museum ..................................................385
   Toru B. Takahashi, Satoshi Takahashi, Fusako Kusunoki, Takao Terano, 
   and Shigenori Inagaki

CIS Session S2

An Exploration of Protecting Local Culture via Content Curation in Local Online Museum .................................................................391
   Binyue Cui, Wanzhao Wang, Wei Zhou, and Shigeki Yokoi

Boosting Regional Vitality with Information and Communication Technology ...............................................................396
   Mana Fukuyasu, Takami Yasuda, Masahiro Ura, Mamoru Endo, Masashi Yamada, 
   and Shinya Miyazaki

The Japanese OTAKUs’ One Month Activity Just after the 3.11 Earthquake .................................................................401
   Keitaro Okuno

SmARTweet: A Location-Based Smart Application for Exhibits and Museums ...............................................................408
   Angelo Chianese, Fiammetta Marulli, Vincenzo Moscato, and Francesco Piccialli

Tablet VR-Learning System: Chemical Laboratory Experience System .................................................................416
   Kyosuke Uchiyama and Kenji Funahashi

Workshop on Colour and Multispectral Imaging

Achromatic Induction: A Variational Interpretation of Rudd-Zemach’s Edge Integration Model .................................................................424
   Edoardo Provenzi

Accurate Wiener Estimation by Constructing a Similar Training Set Based on Spectral Correlation .................................................................430
   Ji-Hoon Yoo, Ho-Gun Ha, Wang-Jun Kyung, and Yeong-Ho Ha
Estimation of Two Illuminant Spectral Power Distributions from Highlights of Overlapping Illuminants

Nguyen Thuc Dieu Hang, Takahiko Horiuchi, Keita Hirai, and Shoji Tominaga

An LED-Based Spectral Imaging System for Surface Reflectance and Normal Estimation

Keita Hirai, Tetsushi Tanimoto, Kazuya Yamamoto, Takahiko Horiuchi, and Shoji Tominaga

Combining Pixel- and Object-Based Approaches for Multispectral Image Classification Using Dempster-Shafer Theory

Youcef Brik, Nabil Zerrouki, and Djamel Bouchaffra

Workshop on Complex Networks and Their Applications (COMPLEX)

COMPLEX Session S1

Evaluating Cerebral Cortex Connectivity with Local Information Algorithm

Giorgio Gronchi, Andrea Guazzini, Franco Bagnoli, and Emanuele Massaro

Toward Community Dynamic through Interactions Prediction in Complex Networks

Blaise Ngonmang and Emmanuel Viennet

Network Analysis Improves Interpretation of Affective Physiological Data

Yuriy Hulovatyy, Sidney D’Mello, Rafael A. Calvo, and Tijana Milenkovic

Structural Network Properties of Niche-Overlap Graphs

Nayla Sokhn, Richard Baltensperger, Louis-Felix Bersier, Ulrich-Ultes Nitsche, and Jean Hennebert

COMPLEX Session S2

Information Diffusion on Twitter: Everyone Has Its Chance, But All Chances Are Not Equal

Cazabet Remy, Nargis Pervin, Fujio Toriumi, and Hideaki Takeda

Ranking Twitter Influence by Combining Network Centrality and Influence Observables in an Evolutionary Model

D. Simmie, M.G. Vigliotti, and C. Hankin

Convince a Dozen More and Succeed—The Influence in Multi-layered Social Networks

Radoslaw Michalski, Przemyslaw Kazienko, and Jaroslaw Jankowski

Modeling Multi-state Diffusion Process in Complex Networks: Theory and Applications

Yishi Lin, John C.S. Lui, Kyomin Jung, and Sungsu Lim

Rumor Dynamics and Inoculation of Nodes in Weighted Scale Free Networks with Degree-Degree Correlation

Anurag Singh and Yatindra Nath Singh
Network Parameters in Practice: A Case Study Using the Target Set Selection Problem ........................................521
         Callum Lowcay, Stephen Marsland, and Catherine McCartin

COMPLEX Session S3
Economic Networks In and Out of Equilibrium .................................................................................................530
         Tiziano Squartini and Diego Garlaschelli
Migration and Trade: A Complex-Network Approach ...........................................................................................538
         Giorgio Fagiolo and Marina Mastrorillo
Border Sensitive Centralities in Patent Citation Networks Using Asymmetric Random
Walks ......................................................................................................................................................................546
         Greg Morrison, Eleftherios Giovanis, Fabio Pammolli, and Massimo Riccoboni
The Relation between Global Migration and Trade Networks ...........................................................................553
         Paolo Sgrignoli, Rodolfo Metulini, Stefano Schiavo, and Massimo Riccaboni
Connectivity and Systemic Risk in the Brazilian National Payments System .......................................................561
         Rodrigo César de Castro Miranda, Sergio Rubens Stancato de Souza, and Benjamin Miranda Tabak
Clustering of Japanese Stock Returns by Recursive Modularity Maximization ...................................................569
         Takashi Isogai

COMPLEX Session S4
Demographic and Structural Characteristics to Rationalize Link Formation in Online
Social Networks ..........................................................................................................................................................577
         Muhammad Qasim Pasta, Zohaib Jan, Faraz Zaidi, and Céline Rozenblat
Missing Links in Multiple Trade Networks ........................................................................................................585
         Rachele Foschi, Massimo Riccaboni, and Stefano Schiavo
Generative Growth Model for Power Grids ...........................................................................................................591
         Deepjyoti Deka and Sriram Vishwanath
Constrained Switching in Graphs: A Constructive Proof .......................................................................................599
         Callum Lowcay, Stephen Marsland, and Catherine McCartin
Motifs in Directed Acyclic Networks ..................................................................................................................605
         C.J. Carstens
Influence Neighbourhoods in CiteSeer: A Case Study .........................................................................................612
         J. Jeffers, K.J. Horadam, C.J. Carstens, A. Rao, and S. Boztas

COMPLEX Session S5
Interdependent Spatially Embedded Networks: Dynamics at Percolation Threshold .....................................619
         Michael M. Danziger, Amir Bashan, Yehiel Berezin, and Shlomo Havlin
Reliability Analysis of Interdependent Networks Using Percolation Theory ...................................................626
         Qiong Zhang, Daqing Li, Rui Kang, Enrico Zio, and Peng Zhang
Overload Network Failures: An Approach from the Random-Walk Model .................................................................630
  Shogo Mizutaka and Kousuke Yakubo

Ergodic Properties of Urban Street Networks in the UK ..................................................................................................634
  A. Paolo Masucci, Kiril Stanilov, Elsa Arcaute, Erez Hatna, and Michael Batty

Determining and Understanding Dynamically Important Differences between Complex Networks Using Reliability-Induced Structural Motifs ......................................................................................641
  Stephen Eubank, Mina Youssef, and Yasamin Khorramzadeh

Analysis on critical nodes in controlling complex networks using dominating sets .......................................................649
  Jose C. Nacher and Tatsuya Akutsu

**Workshop on Dependable and Trustworthy Web and Distributed Information Systems (DTDW)**

**DTDW Session S1**

Effective Fingerprinting Codes for Database ..................................................................................................................655
  Thach V. Bui, Binh Q. Nguyen, Thuc D. Nguyen, Noboru Sonehara, and Isao Echizen

Settings of Access Control by Detecting Privacy Leaks in SNS ....................................................................................660
  Shimon Machida, Shigeru Shimada, and Isao Ecizen

Dependable and Trustworthy Information System under Regional Restrictions ..............................................................667
  Hiroshi Fujikawa

**DTDW Session S2**

Reflection: A Lightweight Protocol for Private Matching ..................................................................................................673
  Mahmood Ahmad, Zeeshan Pervez, Yongik Yoon, Byeong Ho Kang, and Sungyoung Lee

Performance Analysis of Bidirectional Private Policy Matching Protocol Based on Additively Homomorphic Encryption Systems ........................................................................................................679
  Hirofumi Yamaki, Fumihiro Mori, and Momoko Aoyama

A Flexible Authorization Mechanism for Public Wireless LAN Services Based on Automated Trust Negotiation .............................................................................................................................687
  Hirofumi Yamaki and Momoko Aoyama

How to Evaluate Contents Popularity over Oblivious Transfer .........................................................................................693
  Ken Naganuma, Hisayoshi Sato, Masayuki Yoshino, and Yoshinori Sato

Scalable Hierarchical Distributive Auto-configuration Protocol for MANETs .....................................................................699
  Amit Munjal, Yatindra Nath Singh, Akrishna Phaneendra, and Amitabha Roy
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workshop on Evolutionary Methods for Vision</strong></td>
<td></td>
</tr>
<tr>
<td>Feature Level Fusion of Face and Signature Using a Modified Feature</td>
<td>706</td>
</tr>
<tr>
<td>Selection</td>
<td></td>
</tr>
<tr>
<td><em>Suryanti Awang, Rubiyah Yusof, Mohamad Fairol Zamzuri, and Reza Arfa</em></td>
<td></td>
</tr>
<tr>
<td>Proposal of an Awakening Behavior Detection System for Medical Use</td>
<td>714</td>
</tr>
<tr>
<td>and Adaptation for Fluctuation of the Brightness Quantity with Infrared Camera</td>
<td></td>
</tr>
<tr>
<td><em>Fumiaki Takeda</em></td>
<td></td>
</tr>
<tr>
<td>The Implementation of Ant Clustering Algorithm (ACA) in Clustering and</td>
<td>720</td>
</tr>
<tr>
<td>Classifying the Tropical Wood Species</td>
<td></td>
</tr>
<tr>
<td><em>Azlin Ahmad and Rubiyah Yusof</em></td>
<td></td>
</tr>
<tr>
<td>Global Path Planning for Autonomous Mobile Robot Using Genetic Algorithm</td>
<td>726</td>
</tr>
<tr>
<td><em>Masoud Samadi and Mohd Fauzi Othman</em></td>
<td></td>
</tr>
<tr>
<td>Stereo Image Sequence Coding Based on Phase Correlation Disparity</td>
<td>731</td>
</tr>
<tr>
<td>Estimation</td>
<td></td>
</tr>
<tr>
<td><em>Wei-Ming Chen, Cheng-Chi Chiang, and Ping-Hsiang Huang</em></td>
<td></td>
</tr>
<tr>
<td>Tropical Wood Species Recognition System Based on Gabor Filter as</td>
<td>737</td>
</tr>
<tr>
<td>Multiplier</td>
<td></td>
</tr>
<tr>
<td><em>Rubiyah Yusof and Nenny Ruthfalydia Rosli</em></td>
<td></td>
</tr>
<tr>
<td><strong>Workshop on Image/Video Mediated Interactive Systems and Environment (IVISE)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>IVISE Session S1</strong></td>
<td></td>
</tr>
<tr>
<td>An Automated Recognition Technique for Lung Vessel Tree Using Chest</td>
<td>744</td>
</tr>
<tr>
<td>Multi-slice CT Images</td>
<td></td>
</tr>
<tr>
<td><em>Hiroshi Hanaizumi</em></td>
<td></td>
</tr>
<tr>
<td>Real Time Displacement Measurement of Lattice Pattern Using High Speed Camera</td>
<td>751</td>
</tr>
<tr>
<td><em>Yasushi Niitsu, Takaaki Iizuka, and Osamu Furuya</em></td>
<td></td>
</tr>
<tr>
<td>Super-resolution with Adaptive Pixel Weighting Scheme and Its</td>
<td>757</td>
</tr>
<tr>
<td>Application to Super-resolved Free-Viewpoint Image Synthesis</td>
<td></td>
</tr>
<tr>
<td><em>Koichi Hamada, Ryo Nakashima, Keita Takahashi, and Takeshi Naemura</em></td>
<td></td>
</tr>
<tr>
<td>Analysis and Modelling of Affective Japanese Sitting Postures</td>
<td>765</td>
</tr>
<tr>
<td><em>Akito Michishita, Taro Naito, and Tatsuya Shibata</em></td>
<td></td>
</tr>
<tr>
<td><strong>IVISE Session S2</strong></td>
<td></td>
</tr>
<tr>
<td>Image Tracking Based Measuring System for Adaptive English Learning</td>
<td>771</td>
</tr>
<tr>
<td><em>Makoto Shishido</em></td>
<td></td>
</tr>
</tbody>
</table>
Context-Aware Recommendation System Using Content Based Image Retrieval with Dynamic Context Considered ................................................................. 779
   Yuta Miyazawa, Yukiko Yamamoto, and Takashi Kawabe

SNAPPER: Fashion Coordinate Image Retrieval System .............................................................. 784
   Shinya Miura, Toshihiko Yamasaki, and Kiyoharu Aizawa

A Tracking Method for 2D Canvas in MR-Based Interactive Painting System ................................. 790
   Sandy Martedi, Mai Otsuki, Hideo Saito, Maki Sugimoto, Asako Kimura,
   and Fumihisa Shibata

Magrid Surface: An Interactive Display That Varies the Information by an Attached Magnetic Object ............................................................................................................. 795
   Yasushi Hamamura, Takuma Tanaka, and Mitsunori Matsushita

Analysis and Design of Personal Health Record Management System ........................................ 800
   Atsuo Yoshitaka, Shinobu Chujyou, and Hiroshi Kato

Workshop on Medical Image and Signal Analysis (MISA)

MISA Session S1
Auditory Brain-Computer Interface Paradigm with Head Related Impulse Response-Based Spatial Cues ......................................................................................................................... 806
   Chisaki Nakaizumi, Koichi Mori, Toshie Matsui, Shoji Makino, and Tomasz M. Rutkowski

EEG Signal Processing and Classification for the Novel Tactile-Force Brain-Computer Interface Paradigm .......................................................................................................................... 812
   Shota Kono, Daiki Aminaka, Shoji Makino, and Tomasz M. Rutkowski

Bone-Conduction-Based Brain Computer Interface Paradigm—EEG Signal Processing, Feature Extraction and Classification ......................................................... 818
   Daiki Aminaka, Koichi Mori, Toshie Matsui, Shoji Makino, and Tomasz M. Rutkowski

HEp-2 Cell Classification Using Multi-scale Texture Information and Multiple Kernel Learning ................................................................................................................................. 825
   Niraj P. Doshi and Gerald Schaefer

MISA Session S2
An Evaluation System for Risk Factors of the Recurrent Patellar Subluxation: Position and Profile ................................................................. 831
   Akira Maki, Kouki Nagamune, Shinya Oka, Yuichiro Nishizawa, Daisuke Araki,
   Takehiko Matsushita, Ryosuke Kuroda, and Masahiro Kurosaka

Quantitative Evaluation of Patient Specific Instrument for Total Knee Arthroplasty .......................... 837
   Syoji Kobashi, Akihiko Toda, Nao Shibanuma, and Yutaka Hata
An Automated Analysis for Anatomical Structure of Distal Femur from MDCT Image by Contour Tracing ....................................................................................................................842
  Yosuke Uozumi, Kouki Nagamune, Daisuke Araki, Yuichi Hoshino, Takehiko Matsushita, Ryosuke Kuroda, and Masahiro Kurosaka

A Method to Extract Character Strings from Scene Images by Eliminating Non-character Strings: Towards Development of a Visual Assistance System for People with Visual Impairments .........................................................................................848
  Jianjun Chen and Noboru Takagi

Workshop on Resilient Internet-Based Systems (REIS)

REIS Session S1

Development of Real-Time Damage Estimation System for Embankment Using Earthquake Early Warning ..........................................................................................................................................................854
  Tsuneo Ohsumi

Evacuation Guidance System Using Everyday Use Smartphones .........................................................................................................................................860
  Takuya Wada and Tomoichi Takahashi

A Wireless LAN Usage Trends Survey on Campus for Evacuation Planning ........................................................................................................................................865
  Kensuke Miyashita

Road Distance Traveled by Vehicles Following the 2011 Tohoku Earthquake, Calculated by G-BOOK Telematics Data ........................................................................................................................................870
  Hayato Komori and Noriaki Endo

REIS Session S2

Emulation-Based ICT System Resiliency Verification for Disaster Situations ..........................................................................................................................875
  Shingo Yasuda, Kunio Akashi, Toshiyuki Miyachi, Razvan Beuran, Yoshiki Makino, Tomoya Inoue, Shinsuke Miwa, and Yoichi Shinoda

Improvement of Network/Service Resiliency with a Movable and Deployable ICT Resource Unit .........................................................................................................................883
  Toshikazu Sakano, Satoshi Kootabe, Katsuhiko Sebayashi, Tetsuro Komukai, and Atsushi Takahara

Examples of Disaster Recovery Activities Using Information and Communication Technology in Japan ..........................................................................................................................889
  Naoto Matsumoto, Shunsuke Fujieda, Kensuke Miyashita, and Takashi Yamanoue

A Mail Transfer System Selectively Restricting a Huge Amount of E-Mails ..........................................................................................................................896
  Yoshiharu Tsuzaki, Ryosuke Matsumoto, Daisuke Kotani, Shuichi Miyazaki, and Yasuo Okabe
Workshop on Situation Aware Computing (SACOM)

SACOM Session S1

Japanese Ellipsis Resolution in “A NO B” Noun Phrases for Colloquial Inquiry Text
Using Latent Topic Models .................................................................................................................. 901
Tomohiko Harada, Nobuo Suzuki, and Kazuhiko Tsuda

High Precision Credibility Analysis of Information on Twitter ................................................................. 909
Yoshimi Namihira, Naomichi Segawa, Yukino Ikegami, Kenta Kawai, Takashi Kawabe,
and Setsuo Tsuruta

Applying Context Respectful Summarization to Counseling Agent for the Japanese ........................................ 916
Tetsuo Shinozaki, Yukino Ikegami, Estelle Bissay, and Setsuo Tsuruta

Development of a System to Raise Awareness of Hand Hygiene in Various Environments ................................... 924
Toshiko Asai, Akinori Kanazawa, Hidehiko Hayashi, and Akinori Minazuki

Simulation of the Change Acceptance ..................................................................................................... 932
Takao Nomakuchi, Hiroshi Kuroki, and Masakazu Takahashi

Analyzing Supermarket Shopping Paths from Indirect Observation and Simulation Study .................................. 939
Masaki Kitazawa, Takashi Yamada, Masakazu Takahashi, and Takao Terano

SACOM Session S2

Text Mining for the Verification of Scientific Effectiveness of Drugs .............................................................. 944
Takashi Ikoma, Yoshihatsu Fujita, and Kazuhiko Tsuda

Content Repurposing Platform Utilizing Metadata Extracted from Rich Media .............................................. 950
Go Kojima

Efficient Query Processing of Semantic Data Using Graph Contraction on RDBMS ........................................ 958
Akira Hayakawa and Hiroyasu Nishiyama

Kernel Nonnegative Matrix Factorization with Constraint Increasing the Discriminability of Two Classes for the EEG Feature Extraction ................................................................. 966
Motoki Sakai

Development of Lead System for ECG-Derived Respiration Aimed at Detection of Obstructive Sleep Apnea Syndrome ............................................................................................................ 971
Motoki Sakai, Xin Zhu, Yuki Yoshida, and Daming Wei

Workshop on Data-Driven Process Discovery and Analysis

Business Process Discovery by Using Process Skeletonization ........................................................................ 976
Michiharu Kudo, Ai Ishida, and Naoto Sato
Business Process Analysis and Real-world Application Scenarios ................................................................. 983
  Michiharu Kudo, Takahide Nogayama, Ai Ishida, and Mari Abe

Confidence-Aware Sequence Alignment for Process Diagnostics ................................................................. 990
  Eren Esgin and Pinar Karagoz

Using Value Network Analysis to Support Data Driven Decision Making in Urban Planning ................................................. 998
  Cristina Martelli and Emanuele Bellini

SPADE: A Framework for After-Disaster Adaptive Recovery Processes ......................................................... 1004
  Ernesto Damiani, Fulvio Frati, and Babiga Birregah

Workshop on Smart Learning Environments

A Contextual Query Expansion Based Multi-document Summarizer for Smart Learning ................................................. 1010
  Guangbing Yang, Kinshuk, Dunwei Wen, and Erkki Sutinen

To Develop the Virtual Physics Laboratory by Integrating Kinect with Gesture Classification Algorithm ......................................... 1017
  Yi-Zeng Hsieh, Mu-Chun Su, Cheng-Tsung Wu, Chien-Hsing Chou, Ching-Hu Lu,
  Yu-Xiang Zhao, Ya-Yun Cheng, and Yung-Long Chu

Towards the Research of Possible Assessment Tools for Associative Learning Skills ......................................... 1020
  Alejandro Bautista Ramos, Ting-Wen Chang, Kinshuk, and Sabine Graf

MAS Controlled NPCs in 3D Virtual Learning Environment ......................................................................................... 1026
  Grant McClure, Maiga Chang, and Fuhua Lin

Development of a Multi-viewpoint AR-Based Mobile Learning System for Supporting Lunar Observation ......................................... 1034
  Ke Tian, Mamoru Endo, Mayu Urata, Katsuhiro Mouri, and Takami Yasuda

Immersive and Authentic Learning Environments to Mitigate Security Vulnerabilities in Networked Game Devices ......................................... 1042
  Walter W. Ridgewell, Vive Kumar, and Kinshuk

Privacy Framework for Peer Affective Feedback ................................................................................................. 1049
  Mouna Selmi, Esma Aïmeur, and Hicham Hage

Workshop on Social Media Utilization

“Shin-hanga” Filter with Improved Contour Lines and Gradation ........................................................................ 1057
  Ryo Oami, Andrea Kutics, Akihiko Nakagawa, and Satoshi Toyosawa

Extracting Conditional Collocations .................................................................................................................. 1063
  Takumi Sonoda and Takao Miura

Simple Example: Clustering Images Using Expectation Maximization ........................................................................ 1071
  Kurie Nakamura, Andrea Kutics, and Akihiko Nakagawa

xviii