David Taniar, Eric Pardede, Matthias Steinbauer, Ismail Khalil (eds.)

MoMM2012

The 10th International Conference on Advances in Mobile Computing and Multimedia

December 3 - 5, 2012 Bali, Indonesia



The Association for Computing Machinery 2 Penn Plaza, Suite 701 New York, New York 10121-0701



Copyright © 2012 by the Association for Computing Machinery, Inc (ACM). Permission to make digital or hard copies of portions of this work for personal or classroom use is granted without fee provided that the copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. **Copyrights for components of this work owned by others than ACM must be honored**. Abstracting with credit is permitted. To copy otherwise, to republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permission to republish from: Publications Dept. ACM, Inc. Fax +1-212-869-0481 or E-mail permissions@acm.org.

For other copying of articles that carry a code at the bottom of the first or last page, copying is permitted provided that the per-copy fee indicated in the code is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

Notice to Past Authors of ACM-Published Articles

ACM intends to create a complete electronic archive of all articles and/or other material previously published by ACM. If you have written a work that was previously published by ACM in any journal or conference proceedings prior to 1978, or any SIG Newsletter at any time, and you do NOT want this work to appear in the ACM Digital Library, please inform permissions@acm.org, stating the title of the work, the author(s), and where and when published.

ACM ISBN: 978-1-4503-1307-0

Table of Contents

Proceedings of MoMM2012

KEYNOTE TALKS	
10 years Mobile Multimedia: From Motorola RAZR to iPhone 5 Gabriele Kotsis (Johannes Kepler University Linz, Austria)	1
Evolution of Data Management Systems: From Uni-processor to Large-scale Distributed Systems Abdelkader Hameurlain (Paul Sabatier University, France)	2
Innovations in modelling Web Applications Kerstin Altmanninger (Johanens Kepler University Linz, Austria)	3
Is Security an Afterthought when Designing Apps? Edgar Weippl (SBA Research and Vienna University of Technology, Austria)	4
The human side of video streaming services Antonio Liotta (Eindhoven University of Technology, The Netherlands)	5
Information Security in Scale Free Networks Mohamed Ridza Wahiddin (International Islamic University, Malaysia)	6

MoMM2012 Papers

MOBILE BUSINESS AND SERVICES (SHORT PAPERS)

Telecom industry in the cloud value chain - Methods for assessing business opportunities Per Nesse, Stein Svaet, Xiaomeng Su (Telenor Research and Future Studies, Norway), Darijus Strasunskas, Alexei Gaivoronski (Norwegian University of Science and Technology, Norway)	9
An Exploratory Study on Lifestyles and the Adoption of Mobile Services in China Shang Gao, Zhihao Chen, Wenying Zheng, Wenyan Zhou (Zhongnan University of Economics and Law)	13
Sandstorm Monitoring System Architecture using Agents and Sensor Networks Elhadi Shakshuki (Acadia University, Canada), Tarek Sheltami, Muhammad Akhlaq (King Fahd University of Petroleum and Minerals, Saudi Arabia)	17
Secure and Usable Authentication on Mobile Devices Roland Schlöglhofer (KEBA AG, Austria), Johannes Sametinger (Johannes Kepler University, Austria)	21
Service Level Agreement (SLA) Assurance for Cloud Services: A Survey from a Transactional Risk Perspective Le Sun, Jaipal Singh, Omar Hussain (Curtin University, Australia)	27

TwoB: A Two-Tier Web Browser Architecture Optimized for Mobile Network Junguk Cho (Sungkyunkwan University, Korea), Jinkyu Jeong (KAIST, Korea), Euiseo Seo (Sungkyunkwan University, Korea)	ng 31
An Unobtrusive Android Person Verification Using Accelerometer Based Gait Chiung Ching Ho, Eswaran Chikkannan, Kok-Why Ng, June Yee Leow (Multimedia University, Malaysia)	ni- 35
Towards Face Unlock: On the Difficulty of Reliably Detecting Faces on Mobile Phones Rainhard Findling, Rene Mayrhofer (Upper Austrian University of Applied Sciences, Autria)	us- 39
Semantic Bob-Tree: A New Obfuscation Technique for Location Privacy Protection Thu Le Thi Bao, Tran Khanh Dang (HCMC University of Technology, Vietnam)	45
MULTIMEDIA DATA PROCESSING (SHORT PAPERS)	
An Accurate Lecture Video Segmentation Method by Using SIFT and Adaptive Thresholder Hyun Ji Jeong, Tak-Eun Kim, Myoung Ho Kim (KAIST, Korea)	old 49
Transrating-Assisted MPEG-4 Video Resizing with Rate-Distortion Optimization Hongxing Guo, Jie Wang, Ting Tian, Aihua Zhang (Huazhong University of Science a Technology, China)	nd 53
Merits and Pitfalls of Programming Learning Objects: A Pilot Study Reginamary Matthews (The University of Nottingham, Malaysia), Hew Soon Hin, Koo Choo (Multimedia University, Malaysia)	Ah 57
A Method for Fingerprint Alignment and Matching Li Wang, Nandita Bhattacharjee, Bala Srinivasan (Monash University, Australia)	61
Be-code: Information Embedding for Logo Images Kazuha Yamada, Yasuna Yamashita, Masahiro Toyoura, Xiaoyang Mao (University of Yamanshi, Japan), Satoshi Takatsu (CRESCO Co. Ltd., Japan), Chihiro Sugawara (University of Yamanashi, Japan)	
Video Analytics Algorithm For Detecting Objects Crossing Lines In Specific Directi Using Blob-Based Analysis Zulaikha Kadim, Liang Kim Meng, Norshuhada Samudin, Khairunnisa Mohamed Joha Hockwoon Hon, Khairil Hafriza Zakaria, Choong Teck Liong (MIMOS Berhad, Malaysia)	eri,
MOBILE MULTIMEDIA APPLICATIONS	
Mobile Social Tool for Supporting Responsible Drinking in Young Women Launa Li-Yan Lee, Jiayong Ren, Dian Tjondronegoro (Queensland University of Technogy, Australia)	ol- 77
Evaluation of Trippple: a field analysis Selene Uras, Daniele Ardu, Alessandro Soro, Emanuela De Vita, Ivan Marcialis, Gavi Paddeu (CRS4, Italy)	ino 81
Do not judge an interactive book by its cover: a field research Selene Uras, Daniele Ardu, Massimo Deriu, Gavino Paddeu (CRS4, Italy)	85

Identifying Traditional Music Instruments on Polyphonic Indonesian Folksong Using M Frequency Cepstral Coefficients (MFCC) Chairunissa Nurahmad, Mirna Adriani (Universitas Indonesia, Indonesia)	Iel- 89
Evaluation of mobile app paradigms Huy Ngu (Norwegian University of Science and Technology, Norway), Van Thanh Do (lenor and Norwegian University of Science and Technology, Norway)	Te- 93
MOBILE BUSINESS AND SOCIAL APPLICATIONS	
Mobile payment in the smartphone age - extending the Mobile Payment Reference Mo with non-traditional revenue streams Key Poutsttchi, Yvonne Hufenbach (University of Augsburg, Germany)	del 99
Automatic Image Tagging using Two-Layered Bayesian Networks and Mobile Data from Smart Phones Young-Seol Lee, Sung-Bae Cho (Yonsei University, Korea)	
The Adoption of Mobile Tourism Services: An Empirical Study Shang Gao (Zhongnan University of Economics and Law, China), Per Christian Røi John Krogstie (Norwegian University of Science and Technology, Norway)	
Transforming Mobile Personal Life-Log into Autobiographical Chronicles Dian Tjondronegoro (Queensland University of Technology, Australia), Tat-Seng Ch (National University of Singapore, Singapore)	hua 125
Micropayment Scheme Implementation on the Android Platform with Performance Eva ation Andreu Pere Isern-Deyà, Magdalena Payeras-Capellà, Macià Mut Puigserver, Jose-L Ferrer-Gomila, Llorence Huguet-Rotger (Universitat de les Illes Balears, Spain)	
MULTIMEDIA STREAMING AND VISUALIZATION	
StrU: A User Behaviour-aware Video-on-Demand Streaming Service Afsoon Yousefi, Mehdi Deghan (Amirkabir University of Technology, Iran)	142
Quality of Experience Management for Video Streams: the case of Skype Antonio Liotta (Eindhoven University of Technology, The Netherlands), Luca Druda (U versity of Bologna, Italy), Vlado Menkovski, Georgios Exarchakos (Eindhoven University)	
of Technology, The Netherlands) MD2 Spiffon, A System for Opline Detecting MD2 Music Transmissions	152
MP3 Sniffer: A System for Online Detecting MP3 Music Transmissions Chih-Chin Liu (Chung Hua University, Taiwan R.O.C.)	161
A System for Visualizing Sound Source using Augmented Reality Ruiwei Shen, Tsutomu Terada, Masahiko Tsuamoto (Kobe University, Japan)	165
Content Based Image Retrieval System Using NOHIS-tree Mounira Taileb (King Abdulaziz University, Saudi Arabia)	171
EVALUATION OF MOBILE MULTIMEDIA APPLICATIONS	
Evaluating two approaches for browser-based real-time multimedia communication Marcin Davies, Joachim Zeiss, Rene Gabner (FTW Telecommunications, Austria)	177

	Automated and Unsupervised User Interaction Logging as Basis for Usability Evaluation of Mobile Applications	
	Florian Lettner, Clemens Holzmann (University of Applied Sciences Upper Austria, Austria)	186
	Evaluation of Multimedia Quorum-based Synchronization Protocols Tadateru Ohkawara (Seikei University, Japan), Ailixier Aikebaier (NICT, Japan), Tomoya Enokido (Risho University, Japan), Makoto Takizawa (Seikei University, Japan)	196
	Digital Signature-based Authentication Framework in Cognitive Radio Networks Sazia Parvin (Curtin University, Australia), Farookh Khadeer Hussain (University of Technology Sydney, Australia), Omar Hussain (Curtin University, Australia)	204
	The Software Perspective for Energy-Efficient Mobile Applications Development Clauirton Siebra (Federal University of Paraiba Joao Pessoa, Brazil), Paulo Costa, Regina Miranda, Fabio Q B Silva, Andre Santos (Federal University of Pernambuco Recife, Brazil)	212
F	PERVASIVE MOBILE COMPUTING	
	Inferring Human Mobility Patterns from Anonymized Mobile Communication Usage Yuzuru Tanahashi (University of California David, USA), James R. Rowland, Stephen North (ATandT Labs - Research, New Jersey, USA), Kwan-Liu Ma (University of California Davis, USA)	220
	SAPHE - Simple Accelerometer based wireless Pairing with HEuristic trees Bogdan Groza (Politehnica University of Timisoara, Romania), Rene Mayrhofer (University of Applied Sciences Upper Austria, Austria)	230
	Low cost positioning by matching altitude readings with crowd-sourced route data Sharmistha Chatterjee, Jukka.K. Nurminen, Matti Siekkinen (Aalto University School of Science, Finland)	238
	Semantic Video Content Annotation at the Object Level Vanessa El-Khoury, Martin Jergler, David Coquil, Harald Kosch (University of Passau, Germany)	248
	Pedestrian Position and Pathway in the Design of 3D Mobile Interactive Navigation Aid Teddy Mantoro (Universiti Teknologi Malaysia, Malaysia), Adamu I. Abubakar, Media A. Ayu (International Islamic University Malaysia, Malaysia), Haruna Chiroma (University of Malaya, Kuala Lumpur)	258
V	VIRELESS AND AD-HOC SENSOR NETWORKS	
	Searching k-Nearest Neighbor Nodes Based on Node Density in Ad Hoc Networks Yuka Komai, Yuya Sasaki, Takahiro Hara, Shojiro Nishio (Osaka University Japan)	268
	Watermarking Technique for Copyright Protection of Wireless Sensor Network Data using LFSR and Kolmogorov Complexity Bambang Harjito, Vidyasagar Potdar, Jaipal Singh (Curtin University, Australia)	277
	Communication Restoration within Wireless Sensor Networks Sami J. Habib, Paulvanna N. Marimuthu (Kuwait University, Kuwait)	287

A Fuzzy-based Data Replication System for QoS Improvement in MANETs Leonard Barolli, Elis Kulla, Evjola Spaho (Fukuoka Institute of Technology, Japan), Fatos Xhafa (Technical University of Catalonia, Spain), Makoto Ikeda (Fukuoka Institute of Technology, Japan), Muhammad Younas (Oxford Brookes University, UK)	293
A Scheduling Method Considering Heterogeneous Clients for NVoD Systems Yusuke Gotoh (Okayama University, Japan), Tomoki Yoshihisa (Osaka University, Japan), Hideo Taniguchi (Okayama University, Japan), Masanori Kanazawa (The Kyoto College of Graduate Studies for Informatics, Japan)	301
Network Coding Based Energy-efficient Multi-path Routing for Wireless Sensor Network Man Wei, Xiaotao Huang, Chi Wu, Liqun Huang, Fen Wang, Yonggang Zhu (Huazhong University of Science and Technology, China)	309