PROCEEDINGS OF SPIE

Mobile Multimedia/Image Processing, Security, and Applications 2012

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Editors

23–24 April 2012
Baltimore, Maryland, United States

Sponsored and Published by
SPIE

Volume 8406

.
Proceedings of SPIE, 0277-786X, v. 8406

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Mobile Multimedia/Image Processing, Security, and Applications 2012, edited by
Sos S. Agaian, Sabah A. Jassim, Eliza Yingzi Du, Proc. of SPIE Vol. 8406, 840601
© 2012 SPIE · CCC code: 0277-786X/12/$18 · doi: 10.1117/12.977660

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Please use the following format to cite material from this book:
Author(s), "Title of Paper," in *Mobile Multimedia/Image Processing, Security, and Applications 2012*, edited by Sos S. Agaian, Sabah A. Jassim, Eliza Yingzi Du, Proceedings of SPIE Vol. 8406 (SPIE, Bellingham, WA, 2012) Article CID Number.

ISSN 0277-786X
ISBN 9780819490841

Published by
SPIE
P.O. Box 10, Bellingham, Washington 98227-0010 USA
Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445
SPIE.org

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Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.

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Introduction

Current generations of programmable mobile devices are endowed with low-cost high-resolution digital cameras and can provide new opportunity for mass deployment in applications that involve the use of imaging. The range of such applications is widening fast to include a variety of commercial, civil, military, and industrial use. Video streaming over mobile devices, the growing use of PDA's in m-health, the transmission of image-based biometrics over mobile networks in conflict zones, and deployment of secure mobile communications in disaster areas are all but a few examples. Recent trends within the wireless communications industry indicate the emergence of dual use defense and security schemes that have civilian as well as military applications. The constrained capabilities of mobile devices and the nature of wireless channels are a source of tough challenges in image processing and security of multimedia objects. These challenges include: efficient processing of image/video processing suitable for mobile devices, security mechanism for complex multi-media signals that preserve privacy to fully exploit the capabilities of, proactive security solutions to protect computing infrastructures and sensitive information systems while preserving the privacy of the citizens.

Once again, this conference attracted numerous high quality research papers and posters all attempting to make valuable contributions towards meeting some of the challenges listed above, as well as advancing basic research in the field of mobile multimedia.

Several papers propose novel secure and efficient algorithms for image/video processing, authentication, and object/pattern recognition relating to a variety of applications. In this respect, dynamic multifactor authentication scheme for m-Commerce applications using independent location-based obfuscation method was proposed to improve the authentication efficiency and security; comprehensive feature and texture fusion-based image registration approach was proposed to improve the registration accuracy and efficiency for mobile applications; novel preprocessing and segmentation of Arabic handwritten text were developed for improved recognition; 3D shape data from a 3D near infrared sensor was used for saccadic eyes recognition; novel salient region detection method was proposed for object tracking; new retinal image analysis method was designed for quantification of progression of ocular disease; mathematical properties of a sensitivity measure was studied for quantifying feature variation; A manifold learning-based identification was designed for latent variations in root cross sections of plants; computer-assisted machine-to-human protocols were designed for authentication of a RAM-based embedded system; and enhancement and analysis fused thermal and RGBD data was proposed. Image de-noising was addressed by a fractal-based nonlocal mean

scheme while local enhancement and de-noising algorithms on arbitrary mesh surfaces for 3D images were also reported.

The security and performance of single and multimodal biometrics are covered by a number of papers with focus on improved accuracy, efficiency, and usability. Various aspects of face, fingerprint, iris, sclera, palmprint, and multimodal-based identification schemes are tackled with emphasis on the effect of image quality on template representation and performance, and the use of multifactor authentication schemes that incorporate challenge and response and/or location information. In this aspect, neuro-fuzzy prediction method was designed for corrupted fingerprint restoration; Parallel computing-based sclera recognition was proposed for human identification; SURF characterized limited physiological information was developed for face recognition; quality measures were used for Biometric templates selection and update; multi-biometrics fusion was developed for identity verification; adaptive error correction codes were proposed for face identification; real-time face identification method was designed for mobile environments; incremental fusion of partial biometric information was designed to for partial-face recognition; and new method for improving energy efficiency in handheld biometric applications was proposed.

Several papers proposed efficient encryption, forensic, stenography, and privacy-protection methods for mobile applications. In this respect, acousto-optic chaos method was proposed for information encryption and retrieval in mid-RF range; new methods were designed for high-capacity embedding in multimedia covers using redundant number systems with adjunctive numerical representations; novel approach for privacy-aware access control for video data in intelligent surveillance systems; different analysis methods for forensic investigation of mobile devices using commercial tools was studied; analysis methods were designed for Mac OS X with commercial forensic software; modern forensic software tools were used for iPhone examination; joint context prediction was used for covert data merging; and forensics of geodata was collected by various mobile devices; burner serial number placed on DVD-R(W) optical disks was studied for forensic determination;

The various presentations attracted interesting, high-quality interactions and generated only a few follow up challenges thereby demonstrating the importance and relevance of the tackled issues to the current challenges in mobile multimedia processing and security of wireless technologies. An interesting feature of this conference was the active participation of researchers from all over the world including Europe, Asia, and the US. This feature helps fostering genuine international research collaboration.

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