# 2016 IEEE International Conference on Consumer Electronics-Taiwan (ICCE-TW 2016)

Nantou County, Taiwan 27 – 29 May 2016



**IEEE Catalog Number: ISBN:** 

CFP16B07-POD 978-1-5090-2074-4

## Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

\*\*\*This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP16B07-POD

 ISBN (Print-On-Demand):
 978-1-5090-2074-4

 ISBN (Online):
 978-1-5090-2073-7

#### **Additional Copies of This Publication Are Available From:**

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



## 2016 IEEE International Conference on Consumer Electronics-Taiwan (ICCE-TW)

#### Recent Advances in Data Hiding, Signal Processing and Its Application

	An Approach to Object Contour Completion By Combining High Level and Low Level Cues	
	Kar Seng Loke (Swinburne University of Technology Sarawak, Malaysia)	1
	Region-of-Interest Encryption in HEVC Compressed Video	
	Yiqi Tew (University of Malaya, Malaysia), KokSheik Wong (University of Malaya, Malaysia), Raphael CW. Phan (Multimedia University, Malaysia)	3
	Low Complexity Watermarking Scheme for Scalable Video Coding	
	Adamu Muhammad Buhari (Multimedia University, Malaysia), Huo-Chong Ling (Curtin University, Malaysia), Vishnu Monn Baskaran (Multimedia University, Malaysia), KokSheik Wong (University of Malaya, Malaysia)	5
Advance	ed Cryptography and Its Applications	
	Comments on the Authentication Scheme for IoT and Cloud Servers	
	Ting-Fang Cheng (Feng Chia University, Taiwan)	7
	Coordinate System for Elliptic Curve Cryptosystem on Twisted Edwards Curve	
	Masaaki Shirase (Future University Hakodate, Japan)	9
	Reduction of Certificates in an Anonymous Credential System with Proofs for Monotone Formulas on Attributes	
	Shahidatul Sadiah (Hiroshima University, Japan), Toru Nakanishi (Hiroshima University, Japan)	11
	An Improvement of Scalar Multiplication on Elliptic Curve Defined over Extension Field Fq2	
	Md. Al-Amin Khandaker (Okayama University, Japan), Yasuyuki Nogami (Okayama University, Japan)	13
	A Pseudo-random Binary Sequence Generated by Using Primitive Polynomial of Degree 2 over Odd Characteristic Field Fp	
	Arshad Ali (Okayama University, Japan), Yasuyuki Nogami (Okayama University, Japan)	15
	Efficient Operation over F(2 4) 2 for Security Technologies	
	Norito Jitsui (Okayama University, Japan), Yasuyuki Nogami (Okayama University, Japan), Hwajeong Seo (Institute for Infocomm Research (I2R) - A Star, Singapore), Nasima Begum (Okayama University, Japan)	17
		17
Challeng	ges for Smart Future	
	ICST: Low-Delay Forward Error Correction Scheme with Interleaved Coding and Sequential Transmission	
	Yung-Tsung Weng (Institute of Computer and Communication Engineering, National Cheng Kung University, Taiwan), Chi Huang Shih (Hungkuang University, Taiwan), Meng-Ping Lin (National Cheng Kung University, Taiwan), Ce-Kuen Shieh (National Cheng Kung University, Taiwan)	19
	16 Series Li-ion Battery Cells Current Sensor	
	Tzung-Je Lee (Cheng Shiu University, Taiwan), Wun-Cing Yu (Cheng Shiu University, Taiwan), You-Ting Liu (Cheng Shiu University, Taiwan)	21
	A High-Efficiency Self-Oscillating Class D Amplifier in 0.35-um CMOS	
	Jun-Hong Weng (Tunghai University, Taiwan), I-Chun Tsai (Tunghai University, Taiwan), Yu- Jang Hsu (Tunghai University, Taiwan)	23

### Recent advances in Multimedia Technology for Smart Home/Offices/Campus

De	epth Image Object Recognition using Moment Invariants	
	Jie Sheng Tham (National Chiao Tung University, Taiwan), Yong-Sheng Chen (National Chiao	
	Tung University, Taiwan), Mohammad Faizal Ahmad Fauzi (Multimedia University, Malaysia), Yoong Choon Chang (Universiti Tunku Abdul Rahman, Malaysia)	25
	tive Surveillance using Depth Sensing Technology - Part I: Intrusion Detection	23
	Boon Leng Yap (Multimedia University, Malaysia), Vishnu Monn Baskaran (Multimedia	
	University, Malaysia)	27
	tive Surveillance using Depth Sensing Technology - Part II: Extending Tracking Range via	
	scaded Depth Sensors	
	Wei Qi Chung (Multimedia University, Malaysia), Vishnu Monn Baskaran (Multimedia University, Malaysia)	29
	tive Surveillance using Depth Sensing Technology - Part III: Real-time Intrusion Mapping th Remote Notification	
	Jun Chieh Chua (Multimedia University, Malaysia), Vishnu Monn Baskaran (Multimedia University, Malaysia)	31
Lo	w-Cost Campus Bus Tracker using WiFi Access Points	
I	KuanYew Tan (University of Malaya, Malaysia), KokSheik Wong (University of Malaya, Malaysia)	33
Computer Ne	tworks and Sensor Technologies	
A	Completely Fair Secret Sharing Scheme without Dealer	
	Yi Sun (Beijing University of Posts and Communications, P.R. China), Gaochao Li (CNCERT/	
	CC, P.R. China), Zhaowen Lin (Beijing University of Posts and Telecommunications, P.R.	
	China), Fei Xiao (Beijing University of Posts and Telecommunications & Beijing University of Posts and Telecommunications, P.R. China), Xiaoming Yang (The fifth Electronics Research	
	Institute of the Ministry, P.R. China)	35
	Novel Collaborative Filtering Recommendation Algorithm Based on User Location	
	Zhipeng Gao (Beijing University of Posts and Telecommunications, P.R. China), Zehui Lu	
	(Beijing University of Posts and Telecommunications, P.R. China), Nanjie Deng (Beijing	
	University of Posts and Telecommunications, P.R. China), Kun Niu (Beijing University of Posts and Telecommunications, P.R. China)	37
	olutions for Problems of Existing E-Commerce Recommendation System	57
	Zhipeng Gao (Beijing University of Posts and Telecommunications, P.R. China), Zhixing Li	
	(Beijing University of Posts and Telecommunications, P.R. China), Kun Niu (Beijing University	
	of Posts and Telecommunications, P.R. China)	39
	operative Power Minimization for the Coexistence of Heterogeneous Multi-hop Networks	
	Feng Tian (Nanjing University of Posts and Telecommunications, P.R. China), Dapeng Li	
	(Nanjing University of Posts and Telecommunications, P.R. China), Yong-an Guo (Nanjing University of Posts and Telecommunications, P.R. China), Xuejun Zhang (Nanjing University	
	of Posts and Telecommunications, P.R. China)	41
IoT Internet fo	or Intelligent City	
io i internet it	or intelligent oity	
A	Cost-Awareness Multicast Approach for Vehicular Ad Hoc Networks	
	Chengchao Ji (Chuzhou University, P.R. China), Zhengkun Mi (Nanjing University of Posts and	
	Telecommunications, P.R. China), Wen-Nai Wang (Nanjing University of Posts and	
	Telecommunications, P.R. China), Guilin Chen (Chuzhou University, P.R. China), JunWei Yang (Chuzhou Power Supply Company, P.R. China)	43
(	Cinazina i ower Supply Company, i ik. Cimia)	

	Object Detection Using Admitive Black based Background Madel	
	Object Detection Using Adaptive Block-based Background Model	
	Wen Kai Tsai (National Formosa University, Taiwan), Ming-Hwa Sheu (National Yunlin University of Science & Technology, Taiwan), Chi-Chia Sun (National Formosa University,	
	Taiwan)	45
	IOT Solution for Public Bicycle System	
	Chun Kai (National Formosa University, Taiwan), Zih-Hong Chen (National Formosa University, Taiwan), Chi-Chia Sun (National Formosa University, Taiwan)	47
	Intelligent System Design for Variable Color Temperature LED Street Light	
	Ming-Hwa Sheu (National Yunlin University of Science & Technology, Taiwan), Li-Hung Chang (National Yunlin University of Science & Technology, Taiwan), Shih Chang Hsia (Yunlin University of Science and Technology, Taiwan), Chi-Chia Sun (National Formosa University, Taiwan)	49
Poster Se	ession 1	
	Circuit Design of an AC-Powered LED Lamp for both Illumination and Data Transmission	
	Tang-Jen Liu (Far East University, Taiwan)	51
	An Wearable Eye Tracker for Coordinates of POG Estimation Using 3D Model	JI
	Chun-Wei Hu (National Taiwan Normal University, Taiwan), Chi-Wu Huang (National Taiwan	
	Normal University, Taiwan)	53
	Image Sharpening Using Matrix Riesz Fractional Order Differentiator and Discrete Sine Transform	
	Su-Ling Lee (Chang-Jung Christian University, Taiwan), Chien-Cheng Tseng (Kaoshiung first University of Science and Technology, Taiwan)	55
	A Sampling Rate Increasing Method Using Matrix Low-pass Filter and Discrete Cosine Transform	
	Chien-Cheng Tseng (Kaoshiung first University of Science and Technology, Taiwan), Su-Ling Lee (Chang-Jung Christian University, Taiwan)	57
	License Plate Localization and Recognition under Different Illumination Conditions	
	Cheng-Yu Wen (National Kaohsiung First University of Science and Technology, Taiwan), Tsung-Sheng Huang (National Kaohsiung First University of Science and Technology, Taiwan), Chien-Cheng Tseng (National Kaohsiung First University of Science and Technology, Taiwan), Shih-Shinh Huang (National Kaohsiung First University of Science and Technology,	Ε0.
	Taiwan)An Efficient Motion Blurred Image Restoration Scheme based on Frequency Domain Estimation	59
	Ciao-Kai Yu (NCHU, Taiwan), Bing-Chen Tsai (Himax Imaging, Taiwan), Yin-Tsung Hwang (National Chung Hsing University, Taiwan)	61
	Automatic Chord Generation System Using Basic Music Theory and Genetic Algorithm	
	Shingchern D You (National Taipei University of Technology, Taiwan), Po-Sheng Liu (National Taipei University of Technology, Taiwan)	63
	A Lifting Double-wavelet Algorithm for ECG Signal Denoising	
	Liang-Hung Wang (Fuzhou University, P.R. China)	65
	Temporal Video Quality Assessment Method Involving Structural Similarity Index	
	Woei-Tan Loh (Universiti Malaysia Sarawak, Malaysia), David B.L. Bong (Universiti Malaysia Sarawak, Malaysia)	67
	Face And Palmprint Multimodal Biometric System Based On Bit-Plane Decomposition Approach Therry Lee (Universiti Malaysia Sarawak, Malaysia), David B.L. Bong (Universiti Malaysia	
	Sarawak, Malaysia)	69

### **Computer Networks and Sensor Technologies**

	An Improved Multilayer Self-Organizing Background Subtraction Algorithm for Microorganism Detection in Sewage	
	Fang Zhou (Anhui University of Technology & Hefei University of Technology, P.R. China), Jun Liu (Anhui University of Technology, P.R. China), Bing Wang (Anhui University of Technology, P.R. China), Peizhen Wang (An Hui University of Technology, P.R. China)	71
	A Smart Parking System using WiFi and Wireless Sensor Network	
	Yuan Cheng (Nanjing University of Posts and Telecommunications, P.R. China), Fei Li (Nanjing University of Posts and Telecommunications, P.R. China), Jianxin Chen (Nanjing University of Posts and Telecommunications, P.R. China), Wei Ji (NanJing University of Posts and Telecommunications, P.R. China)	73
	QoE-Driven Peer Discovery for D2D Video Communication	
	Yili Jiang (Nanjing University of Posts and Telecommunications, P.R. China), Xin Wei (Nanjing University of Posts and Telecommunications, P.R. China), Aiqing Zhang (Nanjing University of Posts and Telecommunications, P.R. China), JingWu Cui (Nanjing University of Posts And Telecomm, P.R. China), Baoyu Zheng (Nanjing University of Posts and Telecommunications, P.R. China)	75
	Degradation Research of p-Nitro-phenol (PNP) using new Ultrasonic Combination	, 3
	Changping Zhu (Hohai University, P.R. China), Yipeng Zhu (Hohai University, P.R. China), Yunlou Yang (Hohai University, P.R. China), Peisen Fang (Hohai University, P.R. China), Runhang Gong (Hohai University, P.R. China), Bin Wang (Hohai University, P.R. China),	
	Minglei Shan (Hohai University, P.R. China)	77
Comput	ter Networks and Sensor Technologies	
	Diverse Data Mapping for Sleep Status Estimation: From Intelligent Band to Passive Infrared Motion Sensors	
	Yi-Chong Zeng (Institute for Information Industry, Taiwan), Ching-Chi Chuang (National Taiwan University, Taiwan), Chi-Sheng Shih (National Taiwan University, Taiwan), Wen-Tsung Chang (Institute for Information Industry, Taiwan)	79
	Ultra-wide Bandwidth Near ground Channel Analysis and Modeling	
	Jiahui Lyu (University of Science and Technology Beijing (USTB), P.R. China), Jie He (University of Science and Technology Beijing, P.R. China), Duan Shihong (University of Science and Technology Beijing, P.R. China), Qin Wang (University of Science and Technology Beijing, P.R. China)	81
	The Design and Implementation of A Multi-homing Gateway in Wireless Sensor Networks	
	Kuan-Chu Chen (National Chi Nan University, Taiwan), Quincy Wu (National Chi Nan University, Taiwan)	83
	A Look Ahead Mechanism to Speed Up Packets Delivery in an OpenFlow Software-Defined Network	
	Yung-Yu Wang (National Chi Nan University, Taiwan), Quincy Wu (National Chi Nan University, Taiwan)	85
Comput	ter Networks and Sensor Technologies	
	Tracking Quality Guaranteed Mechanisms in WSNs	
	Cuijuan Shang (Chuzhou University, P.R. China), Guilin Chen (Chuzhou University, P.R. China), Chengchao Ji (Chuzhou University, P.R. China), Chih-Yung Chang (Tamkang	07
	University, Taiwan), JunWei Yang (Chuzhou Power Supply Company, P.R. China)	8/
	Yatao Li (Beijing University of Posts and Telecommunications, P.R. China), Yingying Guo (Beijing University of Posts and Telecommunications, P.R. China), Hong Luo (Beijing	
	University of Posts and Telecommunications, P.R. China)	89

	Recharging Path Construction for Mobile Recharger in Wireless Sensor Networks  Hongli Yu (Chuzhou University, P.R. China), Guilin Chen (Chuzhou University, P.R. China), Chih-Yung Chang (Tamkang University, Taiwan)	91
	Format-Preserving Encryption for Excel	7 ±
	Peng Wang (Beijing University of Posts and Telecommunications, P.R. China), Hong Luo	
	(Beijing University of Posts and Telecommunications, P.R. China), Jie Liu (Beijing University of Posts and Telecommunications, P.R. China)	93
Comput	er Networks and Sensor Technologies	
	2D Book time Both Blanning for ALIV Book on Improved Big inquired November Naturals	
	3D Real-time Path Planning for AUV Based on Improved Bio-inspired Neural Network Jianjun Ni (Hohai University, P.R. China), Liuying Wu (Hohai University, P.R. China), Shihao Wang (Hohai University, P.R. China), Kang Wang (Hohai University, P.R. China)	95
	Pengchen Ma (Beijing Jiaotong University, P.R. China), Dan Tao (Beijing Jiaotong University, P.R. China)	97
Comput	er Networks and Sensor Technologies	
	An effective pursuing scheme for iBeacon device	
	Huanhuan Wang (Beijing University of Posts and Telecomm, P.R. China), Yingying Guo (Beijing University of Posts and Telecommunications, P.R. China), Yan Sun (Beijing University of Posts and Telecommunications, P.R. China), Hong Luo (Beijing University of Posts and Telecommunications, P.R. China)	۵۵
	Image Denoising via Expected Patch Log Likelihood with Gaussian Model Identification	
	Yibin Tang (Hohai Universitiy, P.R. China), Yan Zhang (Hohai Universitiy, P.R. China), Ying Chen (Southeast University, P.R. China), Yuan Gao (Hohai University, P.R. China), Changping Zhu (Hohai University, P.R. China)	101
	The Effect Of Multipath And NLOS On TOA Ranging Error And Energy Based On UWB	101
	Li Xifei (University of Science & Technology Beijing, P.R. China), Jie He (University of Science & Technology Beijing, P.R. China), Liyuan Xu (University of Science & Technology Beijing, P.R. China), Qin Wang (University of Science and Technology Beijing, P.R. China)	103
	Identifying Mild Cognitive Impairment Conversion to Alzheimer's Disease from Medical Image Information	103
	Bing Wang (Anhui University of Technology, P.R. China), Rui Hong (Anhui University of Technology, P.R. China), Fang Zhou (Anhui University of Technology & Hefei University of Technology, P.R. China), Liu Xiaodong (Anhui University of Technology, P.R. China), Zhang Jiayan (Anhui University of Technology, P.R. China), Peizhen Wang (An Hui University of Technology, P.R. China)	105
Comput	er Networks and Sensor Technologies	
	Incremental Relaying Cooperation for Bidirectional Communication	
	Yuan Gao (Hohai University, P.R. China), Changping Zhu (Hohai University, P.R. China), Zhixiang Deng (Hohai University, P.R. China), Yulong Zou (Nanjing University of Posts and Telecommunications, P.R. China), Jia Zhu (Nanjing University of Posts and Telecommunications, P.R. China)	107
	Coupling Mechanism between Ozone and Dual Frequency Ultrasound in Advanced Oxidative Process	
	Cheng Yao (Hohai University, P.R. China), Changping Zhu (Hohai University, P.R. China), Qiang Wu (Hohai University, P.R. China), Shan Minglei (Hohai University, P.R. China), Bingyan Chen (Hohai University, P.R. China)	109

	Chinese Paper-cut Generated from Human Portrait	
	Kun Dang (Beijing University of Posts and Telecommunications, P.R. China), Guiling Song (Beijing University of Posts and Telecommunications, P.R. China), An-Long Ming (Beijing University of Posts and Telecommunications, P.R. China)	111
	Classification of Inertinite in Coal Macerical based on Virtual Sample	
	Peizhen Wang (An Hui University of Technology, P.R. China), Rui Sun (Anhui University of Technology, P.R. China), Dailin Zhang (Anhui University of Technology, P.R. China), Fang Zhou (Anhui University of Technology & Hefei University of Technology, P.R. China), Bing Wang (Anhui University of Technology, P.R. China)	113
Basan	t Advances in Intelligent Signal Drocessing	
Recen	t Advances in Intelligent Signal Processing	
	The Enhancement of Recycling Folded Cascode Amplifier	
	Po-Yu Kuo (National Yunlin University of Science & Technology, Taiwan), Gang-Jhih Fan (National Yunlin University of Science & Technology, Taiwan), Sheng-Da Tsai (National Yunlin University of Science & Technology, Taiwan)	115
	Signal Measurement and Prediction of WiMAX Basestations on Taiwan High Speed Rail	
	Dan-Chen Wu (National Chiao Tung University, Taiwan), Ping-Fan Ho (National Chiao Tung University, Taiwan), Jyh-Cheng Chen (National Chiao Tung University, Taiwan), Jen-Shun Yang (Industrial Technology Research Institute, Taiwan), Hsien-Wen Chang (Industrial	117
	Technology Research Institute, Taiwan)	11/
	Chuan-Yu Chang (National Yunlin University of Science and Technology, Taiwan), Jia-Jing Li (National Yunlin University of Science & Technology, Taiwan)	119
	Application of machine learning to classify surface marker of screw	
	Chuan-Yu Chang (National Yunlin University of Science and Technology, Taiwan), Hung-Chang Shie (National Yunlin University of Science and Technology, Taiwan)	121
	Image Bit-Planes Representation for Moving Object Detection in Real-Time Video Surveillance	
	Chih-Yang Lin (Asia University, Taiwan), Zhi-Yao Jian (National Chung Cheng University, Taiwan), Wei-Yang Lin (National Chung Cheng University, Taiwan)	123
	3D Feature Extraction of Vertebrae for Secure Transpedicular Drill Guide	
	Wen-Hun Xu (Nation Sun Yat-sen University, Taiwan), Chih-Yang Lin (Asia University, Taiwan), Chia-Hung Yeh (National Sun Yat-Sen University, Taiwan)	125
	Dynamic Connection Admission Control in 4G LTE-Advanced Multihop Relaying Networks	
	Ben-Jye Chang (National Yunlin University of Science and Technology, Taiwan), Ying-Hsin Liang (Nan Kai University of Technology, Taiwan), Yu-Hsien Lee (Chaoyang University of Technology, Taiwan)	127
	Adaptive Cross-Layer-based TCP Congestion Control for 4G Wireless Mobile Cloud Access	127
	Ben-Jye Chang (National Yunlin University of Science and Technology, Taiwan), Ying-Hsin Liang (Nan Kai University of Technology, Taiwan), Jun-Yu Jin (Chaoyang University of	420
	Technology, Taiwan)The Construction of Logical Circular Chain for Industrial Wireless Sensor Networks	129
	Ching-Lung Chang (National Yunlin University of Science and Technology, Taiwan)	131
	Ching-Lung Chang (National Turnin Oniversity of Science and Technology, Talwari)	151
Best P	Paper Competition	
	A Load Feedback based Resource Scheduling Algorithm for IaaS Cloud Platform	
	Bingxu Wang (Beijing Jiaotong University, P.R. China), Dan Tao (Beijing Jiaotong University, P.R. China), Zhaowen Lin (Beijing University of Posts and Telecommunications, P.R. China)	133
	Design of compact microwave diplexer for system-in-a-package applications	
	Chi-Feng Chen (Tunghai University, Taiwan), Wang Guo-Yun (Tunghai University, Taiwan), Tseng Bo-Hao (Tunghai University, Taiwan), Lin Ting-An (Tunghai University, Taiwan)	135

	Authentication for AAC Compressed Audio using Data Hiding	
	Imdad MaungMaung (University of Malaya, Malaysia), Yiqi Tew (University of Malaya, Malaysia), KokSheik Wong (University of Malaya, Malaysia)	137
	HDR Compression based on Image Matting Laplacian	
	Chingchun Huang (National Chung Cheng University, Taiwan), Ismail Ismail (National Chung Cheng University, Indonesia), Ming-Xun Cai (National Chung Cheng University, Taiwan), Hoang Tran Vu (National Chung Cheng University, Taiwan)	139
	New Hysteresis Current Band Digital Control for Half Bridge Inverters	
	Triet Nguyen-Van (The University of Tokyo, Japan), Rikiya Abe (the University of Tokyo, Japan)	141
	Design and Implementation of Blind Source Separation for Noise Reduction	
	Tsung-Han Tsai (National Central University, Taiwan), Yu-He Chiou (National Central University, Taiwan), Pei-Yun Liu (National Central University, Taiwan)	143
Interne	t of Things: Technologies and Applications	
	iFound: An Object Locator Platform Based on The Radio Transmission for IoT Application	
	Chung-Ping Young (National Cheng Kung University, Taiwan), Yen-Bor Lin (National Cheng Kung University, Taiwan), Kuan-Yu Chen (National Cheng-Kung University, Taiwan)	145
	Design of long range low power sensor node for the last mile of IoT	
	Yaw-Wen Kuo (National Chi Nan University, Taiwan)	147
	Energy-Efficient Device-Based Node Authentication Protocol for the Internet of Things Shih-Chang Lin (National Chung Hsing University, Taiwan), Chih-Yu Wen (National Chung Hsing University, Taiwan)	149
	Topology Constructing and Restructuring Mechanisms for Bluetooth Radio Networks	177
	Qiaoyun Zhang (Chuzhou University, P.R. China), Guilin Chen (Chuzhou University, P.R. China), Liang Zhao (Chuzhou University, P.R. China), Chih-Yung Chang (Tamkang University, Taiwan)	151
	Cloaking Sensitive Patterns To Preserve Location Privacy For LBS Applications	
	Hsiao-Ping Tsai (National Chung Hsing University, Taiwan), Feng Yuan Tai (National Chung Hsing University, Taiwan), Jian-Kai Song (National Chung-Hsin Universiay, Taiwan), Yi-Chen Tsai (National Chung-Hsin Universiay, Taiwan)	153
	Describing Things in the Internet of Things	
	Soumya Kanti Datta (EURECOM & Co-Founder, Future Tech Lab, France), Christian Bonnet (Institut Eurecom, France)	155
	IoT Inventor: A Web-enabled Composer for Building IoT-enabled Reconfigurable Agentized Services	
	Ching-Hu Lu (National Taiwan University of Science and Technology, Taiwan), Timothy Hwang (Yuan Ze University, Taiwan), I-Shyan Hwang (Yuan-Ze University, Taiwan)	157
	Integrating Named Data Networking in Internet of Things Architecture	
	Soumya Kanti Datta (EURECOM & Co-Founder, Future Tech Lab, France), Christian Bonnet (Institut Eurecom, France)	159
ICT Ted	chnologies for Industry and Consumer Electronics	
	Design of Over-current Protection Circuit for Power Transistors	
	Kuan-Yi Lu (Industrial Technology Research Institute, Taiwan), Oscal TC. Chen (National Chung Cheng University, Taiwan), Chin Hsia (National Central University, Taiwan)	161
	Manipulated Cell Phone Camera with Using Accelerometer Devices	
	Jian-Chiun Liou (National Kaohsiung University of Applied Sciences, Taiwan), Wen-Chieh Lin (Kao Yuan University, Taiwan), Wei-Jie Wen (National Kaohsiung University of Applied Sciences (KUAS), Taiwan), Wen-De Lin (National Kaohsiung University of Applied Sciences	
	(KUAS), Taiwan)	163

	Investigated of Identification Circuit with Fuse Sensors in Consumer Inkjet Printhead Chip	
	Jian-Chiun Liou (National Kaohsiung University of Applied Sciences, Taiwan), Wen-Chieh Lin (Kao Yuan University, Taiwan), Wen-De Lin (National Kaohsiung University of Applied	4.65
	Sciences (KUAS), Taiwan)  Identifying Battery-Draining Applications by Monitoring Behavior in Screen-Off State in Android	165
	Shun Kurihara (Kogakuin University, Japan), Shoki Fukuda (Kogakuin University Graduate School, Japan), Shintaro Hamanaka (Kogakuin University Graduate School, Japan), Masato Oguchi (Ochanomizu University, Japan), Saneyasu Yamaguchi (Kogakuin University, Japan)	167
	Accelerated Application Monitoring Environment of Android	107
	Shoki Fukuda (Kogakuin University Graduate School, Japan), Shun Kurihara (Kogakuin University, Japan), Shintaro Hamanaka (Kogakuin University Graduate School, Japan), Masato Oguchi (Ochanomizu University, Japan), Saneyasu Yamaguchi (Kogakuin University, Japan)	169
	A Novel Fast-Switching Current-Pulse Driver for LED Backlight Applications	
	Yen-Chung Huang (Industrial Technology Research Institute, Taiwan), Hung-Wei Chen (National United University, Taiwan)	171
	Application State Aware GC Selection Optimization in Android	
	Shintaro Hamanaka (Kogakuin University, Japan), Shun Kurihara (Kogakuin University, Japan), Shoki Fukuda (Kogakuin University Graduate School, Japan), Masato Oguchi (Ochanomizu University, Japan), Saneyasu Yamaguchi (Kogakuin University, Japan)	172
innovation	Techniques and Applications of Multimedia / Image Processing/ Biotechnology	
	Acceleration of the Transformation from Elliptic Omnidirectional Images to Panoramic Images Using Graphic Processing Units	
	Cheng-Hung Lin (National Taiwan Normal University, Taiwan), Wen-Jui Chou (National Taiwan Normal University, Taiwan)	175
	Manipulation classification for near-duplicate videos	
	Shen-Chuan Tai (National Cheng Kung University, Taiwan), Guo-Shiang Lin (Da-Yeh University, Taiwan), Tang Yu Chang (National Cheng Kung University, Taiwan)	177
	Crowdsourcing System on Measuring Quality of Experience for Internet Video Streaming	
	Yih-Chuan Lin (National Formosa University, Taiwan), Zhe-Sheng Shih (National Formosa University, Taiwan)	179
	Design of Persimmon Growing Stage Monitoring System Using Image Recognition Technique	
	Kuei-Chung Chang (Feng Chia University, Taiwan), Liu Po-Kai (Feng Chia University, Taiwan), Zi-Wen Kuo (Feng Chia University, Taiwan), Sin-Huei Liao (Feng Chia University, Taiwan)	181
	Implementation of Laser Speckle Imaging System with Low Cost Consumer Graded Instrumentation for Skin Perfusion	
	Wei-Min Liu (National Chung Cheng University, Taiwan), Hsin-Liang Chen (National Chung-Cheng University, Taiwan), Chih-Lu Lai (National Chung-Cheng University, Taiwan), Kai-Yang Hsu (National Chung Cheng University, Taiwan)	183
	Low Power Gesture Recognition System using Skin Statistics for Consumer Applications	
	Mahesh Chandra (STMIcroelectronics Pvt. Ltd. & IIT Delhi, India), Brejesh Lall (Indian Institute of Technology Delhi, India)	185
	Segmentation of Activated Sludge Flocs with Modeling of Illumination Noise	
	Muhammad Burhan Khan (UTAR, Malaysia), Humaira Nisar (Universiti Tunku Abdul Rahman, Malaysia), Choon Aun Ng (UTAR, Malaysia), Po Kim Lo (Universiti Tunku Abdul Rahman,	
	Malaysia), Vooi Voon Yap (University Tunku Abdul Rahman, Malaysia)	187

### **Intelligent Biomedical Electronics**

	An Improved Diffuse Optical Tomography Image Reconstruction Based on Sparse Recovery Method	
	Sun Hao-Jan (National Chiao Tung University, Taiwan), Wai-Chi Fang (National Chiao Tung University, Taiwan)	189
	Smart Shoes Design with Embedded Monitoring Electronics System for Healthcare and Fitness Applications	
	Po-Yu Hwang (Delaware State University, USA), Chia-Ching Chou (National Chiao Tung University, Taiwan), Wai-Chi Fang (National Chiao Tung University, Taiwan), Ching-Ming Hwang (Hsinchu Science Park Administartion & National United University, Taiwan)	191
	A Hierarchy Multiple-Voltage Design Technique for Low-Power Performance-Manageable Bio- Chips	
	Ching-Hwa Cheng (Institute of Electronic Engineering, Feng Chia University, Taiwan)	193
	External Tracking of an Instrument by Electric Fields in Minimally Invasive Surgery	
	Don-Gey Liu (Feng Chia University, Taiwan), Ching-Hwa Cheng (Institute of Electronic Engineering, Feng Chia University, Taiwan)	195
	Differential π-Shaped CMUTs with Improved Linearity and Sensitivity	
	Teng-Chuan Cheng (National Chung Cheng University, Taiwan), Tsung-Heng Tsai (National Chung Cheng University, Taiwan)	197
	An Approach of Head Movement Compensation when using a head mounted eye tracker	
	Chi-Wu Huang (National Taiwan Normal University, Taiwan), Wei-Chieh Tan (National Taiwan Normal University, Taiwan)	199
	Contactless Heart Rate Monitor for Multiple Persons in a Video	
	Humaira Nisar (Universiti Tunku Abdul Rahman, Malaysia), Muhammad Burhan Khan (UTAR, Malaysia), Wong Ting Yi (Universiti Tunku Abdul Rahman, Malaysia), Vooi Voon Yap (University Tunku Abdul Rahman, Malaysia), Shen Khang Teoh (Universiti Tunku Abdul	
	Rahman, Malaysia)	201
Circuits	and Systems for 3D Printing Applications	
	Bandwidth Compressor for 3D-Printing Connections Using EDLR Technique	
	Wen-Yu Chiou (Yuan Ze University, Taiwan), Yu-Hsuan Lee (Multimedia Circuit and System	
	Lab, Department of Electrical Engineering, Yuan-Ze University, Taiwan), Guo-Siang Huang (Yuan Ze University, Taiwan)	203
	A 3D Printing Path Optimizer Based On Christofides Algorithm	
	Kai-Yin Fok (The Hong Kong Polytechnic University, Hong Kong), Nuwan Ganganath (The Hong Kong Polytechnic University, Hong Kong), Chi Tsun Cheng (The Hong Kong Polytechnic University, Hong Kong), Chi Kong Tse (Hong Kong Polytechnic University, Hong Kong)	205
	A Design of Constant Temperature Control System in 3D Printer	200
	Kuang-Hao Lin (National Formosa University, Taiwan), Che-Ying Shen (National Formosa University, Taiwan), Jin-Lin Du (National Formosa University, Taiwan), Guo-Yi Wang (National Formosa University, Taiwan), Hou-Ming Chen (National Formosa University, Taiwan), Jan-Dong Tseng (National Chin Yi University of Technology, Taiwan)	207
	An Accuracy Temperature Sensor for 3D Printing Technology	207
	Hou-Ming Chen (National Formosa University, Taiwan), Kuang-Hao Lin (National Formosa University, Taiwan), Shih-Han Jheng (National Formosa University, Taiwan), Tai-Jhen Wang	
	(Nightana) Farmana Hatanatha Tatana) W. Dan H. (N. C. 15)	
	(National Formosa University, Taiwan), Yi-Rong Huang (National Formosa University, Taiwan), Xian-Ji Huang (National Formosa University, Taiwan)	200

#### **Communication and Information Systems for Next Generation Internet**

	Design of Device-to-Device Decision Schemes for Intra-eNB Traffic in LTE Networks	
	Jeng-Yueng Chen (Hsiuping University of Science and Technology, Taiwan), Yi-Ting Mai (National Taiwan University of Sport, Taiwan), Fan-Wei Yeh (National Chi Nan University, Taiwan)	211
	Throughput Measurements for Access-Point Installation Optimization in IEEE802.11n Wireless Networks	∠11
	Nobuo Funabiki (Okayama University, Japan), Kyaw Soe Lwin (Okayama University, Japan), Minoru Kuribayashi (Okayama University, Japan), I-Wei Lai (Chang Gung University, Taiwan)	213
	An Expected Acquisition Rate Based Contents Sharing Scheme in Hybrid P2P Networks and Cloud Storages	
	Shinji Sugawara (Chiba Institute of Technology, Japan), Masashi Tomimori (Nagoya Institute of Technology, Japan)	215
	A Sensor Fusion Approach for Network Visualization	
	Toshiyuki Haramaki (Oita University, Japan), Hiroaki Nishino (Oita University, Japan)	217
Wearab	le Technology on the Health and Medical Electronics	
	Integration of real-time heart rate and myoelectric monitoring platform on portable system Jian-Chiun Liou (National Kaohsiung University of Applied Sciences, Taiwan), Wen-Chieh Lin (Kao Yuan University, Taiwan), Wen-De Lin (National Kaohsiung University of Applied Sciences (KUAS), Taiwan)	210
	An Self-Adaptive Wireless Indoor Localization System for Device Diversity	219
	Chingchun Huang (National Chung Cheng University, Taiwan), Nguyen Hung (HCMC	
	University of Technology and Education, Vietnam), YuShiun Wang (Kaohsiung University of Applied Sciences, Taiwan)	221
	A Method of Measuring Sleep Quality by Using PPG	
	Hsien-Wei Tseng (Ningde Normal University, P.R. China), Chien-Da Huang (TamKang University, Taiwan), Liang-Yu Yen (Tamkang University, Taiwan), Ting-Wei Lin (Tamkang University, Taiwan), Yi-Lun Chen (Tamkang University, Taiwan)	223
	A Method of Measurement Sleep Quality by Using EEG	
	Hsien-Wei Tseng (Ningde Normal University, P.R. China), Chien-Da Huang (TamKang University, Taiwan), Liang-Yu Yen (Tamkang University, Taiwan), Yu-De Liao (Tamkang University, Taiwan), Yung-Wen Lee (Tamkang University, Taiwan)	225
	Wearable Binocular Eye Tracking targets in 3-D Environment Using 2-D Regression-based Gaze Estimation	
	Chi-Jeng Chang (National Taiwan Normal University, Taiwan), Chi-Wu Huang (National Taiwan Normal University, Taiwan), Chun-Wei Hu (National Taiwan Normal University, Taiwan)	227
Poster	Session 2	
	Smart self-training breathing method for maternity during labor	
	Chung-wei Chang (National Cheng Kung University, Taiwan), Yi-Chien Tsai (National Cheng Kung University, Taiwan), Yu-Yun Hsu (National Cheng Kung University, Taiwan), Ting-Wei Hou (National Cheng Kung University, Taiwan)	229
	The Design of a Tilt Sensing Companion Chip for Accelerometers	
	Ting-hao Tsai (Chang Gung University, Taiwan), Wen-Cheng Chou (Chang-Gung University,	
	Taiwan), Wen-Yen Lin (Chang Gung University, Taiwan), Ming-Yee Lee (Chang Gung University, USA)	231

	University, Taiwan)	257
	Po-Huan Chou (Industrial Technology Research Institute, Taiwan), Yu-Chen Kou (Feng Chia University, Taiwan), Yi-Chung Chen (Feng Chia University, Taiwan), Yi-Chung Chen (Feng Chia University, Taiwan), Heng-Yi Su (Feng Chia	
	Yu-Liang Hsu (Feng Chia University, Taiwan), Yu-Tai Chen (Feng Chia University, Taiwan),	
	University, Taiwan), Wei-Sheng Sheh (Feng Chia University, Taiwan)	255
	Kun-Chih Chen (National Sun Yat-Sen University, Taiwan), Wei-Hsun Lin (Feng Chia	
	Correlation-based Temperature Sensor Allocation for Thermal-aware Mesh-based MPSoCs	
	Kuan-Hung Chen (Department of Electronic Engineering, Feng-Chia University, Taiwan), Shu- Jui Hsieh (Feng Chia University, Taiwan)	253
	A Real-Time Moving Objects Detection and Classification Approach for Static Cameras  Hong-Son Vu (Feng Chia University, Taiwan), Jia-Xian Guo (Feng Chia University, Taiwan),	
	A Real-Time Moving Objects Detection and Classification Approach for Static Cameras	
Emerging	Technologies for Intelligent Electronics	
	Ching Yen Ho (Hwa Hsia University of Technology, Taiwan)	25
	Comparison of Ultrashort-Pulse-Laser Ablation Characteristics for Different Ceramics	273
	Tien-Wen Sung (Fujian University of Technology, P.R. China), Fu-Tian Lin (Tung Fang Design University, Taiwan)	240
	A 2-Phase Scheme for Decreasing Orphan Devices in ZigBee Networks	471
	Hong-Yuan Li (Southern Taiwan University of Science and Technology, P.R. China), Liang-Bi Chen (BXB Electronics Co., Ltd. & National Sun Yat-Sen University, Taiwan), Wan-Jung Chang (Southern Taiwan University of Science and Technology, Taiwan), Jing-Jou Tang (Southern Taiwan University of Science and Technology, Taiwan), Katherine Shu-Min Li (National Sun Yat-Sen University, Taiwan)	247
	Design and Development of an Extensible Multi-Protocol Automotive Gateway	
	Ching Yen Ho (Hwa Hsia University of Technology, Taiwan)	245
	Thermal Characteristics of Region Surrounding Laser Welding Keyhole	243
	University of Technology, Taiwan), Kai-Ten Feng (National Chiao Tung University, Taiwan), Tian-Sheng Wang (Taiwan High Prosecutors Office, Taiwan)	243
	Bo-An Chen (National Chiao Tung University, Taiwan), Po-Hsuan Tseng (National Taipei	
	Ten Feng (National Chiao Tung University, Taiwan), Tian-Sheng Wang (Taiwan High Prosecutors Office, Taiwan)  Fingerprinting-based Dynamic RSS Adjustment for Time-variant Indoor Positioning Systems	241
	University, Taiwan), Po-Hsuan Tseng (National Taipei University of Technology, Taiwan), Kai-	
	Heng-Xiu Liu (National Chiao Tung University, Taiwan), Bo-An Chen (National Chiao Tung	
	Enhanced Area Estimation Algorithms for Indoor Wireless Localization	235
	Ming-Fan Wei (National Chung Hsing University, Taiwan), Robert Chen-Hao Chang (National Chung Hsing University & National Chi Nan University, Taiwan), Chia-Yu Wang (National Chung Hsing University, Taiwan), Chih-Hung Lin (National Chung Hsing University, Taiwan), Hung-Lieh Chen (National Chung Hsing University, Taiwan)	220
	Design of a Flexible PPG Signal Processing Wireless Device	257
	M. Udin Harun Al Rasyid (Politeknik Elektronika Negeri Surabaya (PENS) - Indonesia, Indonesia), Alif Akbar Pranata (Politeknik Elektronika Negeri Surabaya (PENS), Indonesia), Bih-Hwang Lee (National Taiwan University of Science and Technology, Taiwan), Ferry Astika Saputra (Politeknik Elektronika Negeri Surabaya, Indonesia), Amang Sudarsono (Politeknik Elektronika Negeri Surabaya (PENS), Indonesia)	23 <sup>.</sup>
	Portable Electrocardiogram Sensor Monitoring System Based On Body Area Network	
	M. Udin Harun Al Rasyid (Politeknik Elektronika Negeri Surabaya (PENS) - Indonesia, Indonesia), Ferry Astika Saputra (Politeknik Elektronika Negeri Surabaya, Indonesia), Alexander Christian (Politeknik Elektronika Negeri Surabaya (PENS), Indonesia)	235
	Implementation of Blood Glucose Levels Monitoring System Based on Wireless Body Area Network	
	Chin-Sheng Yu (Feng Chia University, Taiwan)	233

Design of Real-time Video Streaming and Object Tracking System for Home Care Services

	Multimodal Learning for Image Popularity Prediction on Social Media	
	Jiani Hu (The University of Tokyo, Japan), Toshihiko Yamasaki (The University of Tokyo, Japan), Kiyoharu Aizawa (University of Tokyo, Japan)	259
	Simple Automatic Vehicle Design Ruei-li Chen (National Yunlin University of Science and Technology, Taiwan)	261
	Ruel-II Cheff (National Fullili Offiversity of Science and Technology, Talwari)	201
High Perfo	ormance and Dependable Computing Systems	
	Performance Improvement Method of the Adaptive Routing Algorithm for 2-Dimensional Torus Network	
	Hiraku Moriya (Shonan Institute of Technology, Japan), Yasuyuki Miura (Shonan Institute of Technology, Japan)	263
	The Performance Evaluation of 3D Torus using LinkSharing Method in NoC Router	
	Naohisa Fukase (Shonan Institute of Technology, Japan), Yasuyuki Miura (Shonan Institute of Technology, Japan), Shigeyoshi Watanabe (Shonan Institute of Technology, Japan), M. M. Hafizur Rahman (International Islamic University Malaysia (IIUM) & Kulliyyah of Information and Communication Technology, Malaysia)	265
	A Proposal of Mixture Communication of the Wormhole and Single-Flit Routing	
	Junpei Sugioka (Shonan Institute of Technology, Japan), Yasuyuki Miura (Shonan Institute of Technology, Japan)	267
	Low-Latency Lossless Compression Codec Design for High-Throughput Data-Buses	
	Yuki Katsu (Tokyo Institute of Technology, Japan), Haruhiko Kaneko (Tokyo Institute of Technology, Japan)	269
	Denoising Method Using a Moving-Average Filter for the Moving-Object Recognition of Low- Illuminance Video-Image	
	Weijie Zhou (Shonan Institute of Technology, Japan), Yasuyuki Miura (Shonan Institute of Technology, Japan)	271
	Expansion of Operations in a Multicore Dataflow DSP	
	Kenji Ichijo (Hirosaki University, Japan)	273
	Optimization Scheme of Denoising Method for the Moving-Object Recognition for Low-Illuminance Video-Image	
	Yasuyuki Miura (Shonan Institute of Technology, Japan), Taishi Sueyoshi (Shonan Institute of Technology, Japan), Takafumi Mori (Shonan Institute of Technology, Japan)	275
Interactive	e and Network-Oriented Applications for Consumer Electronics	
	Worker PC Performance Measurements Using Benchmarks for User-PC Computing System Nobuo Funabiki (Okayama University, Japan), Yuki Aoyagi (Okayama University, Japan), Minoru Kuribayashi (Okayama University, Japan), Wen-Chung Kao (National Taiwan Normal University, Taiwan)	277
	Mahalanobis Distance-Based Road Condition Estimation Method using Network-Connected Manual Wheelchair	
	Kazuyuki Kojima (Saitama University, Japan), Hiroki Taniue (Saitama University, Japan), Jun'ichi Kaneko (Saitama University, Japan)	279
	Hybrid of Ideal Movement Method and Virtual Rail Method for Network Construction in Mobile Sensor Network	
	Yoshiki Nakashima (Kagoshima University, Japan), Noritaka Shigei (Kagoshima University, Japan), Hiromi Miyajima (Kagoshima University, Japan)	281
	A Color Layout Exploration Method for Artwork Production	
	Satoru Miura (Oita University, Japan), Hiroaki Nishino (Oita University, Japan), Tsuneo Kagawa (Oita University, Japan), Toshiyuki Haramaki (Oita University, Japan)	283
	Efficient Strength Training in a Virtual World	
	Yuki Tanaka (Shimane University, Japan), Masahito Hirakawa (Shimane University, Japan)	285

An Analysis System of IoT Services Based on Agent-Oriented Petri Net PN2	
Shingo Yamaguchi (Yamaguchi University, Japan), Shoki Tsugawa (Yamaguchi University, Japan), Kazuya Nakahori (Yamaguchi University, Japan)	287
Smart Grid and Energy Management for CE	
A Protocol for Energy Transmission in Packetized Energy Networks with Sources and Consumers	
Hisayoshi Sugiyama (Osaka City University, Japan)	289
FYPSim: An Estimation Framework for Energy Harvesting and Energy Prediction for WSNs	
Faisal Ahmed (Tallinn University of Technology, Estonia), Yannick Le Moullec (Tallinn University of Technology, Estonia), Paul Annus (Tallinn University of Technology, Estonia)	291
Digital Grid: Full of Renewable Energy in the Future	
Rikiya Abe (the University of Tokyo, Japan)	293
IoT Based Energy Management for Residential Area	
Raafat Aburukba (American University of Sharjah, United Arab Emirates (UAE)), Abdul-Rahman Al-Ali (American University of Sharjah, United Arab Emirates (UAE)), Taha Landolsi (American University of Sharjah, United Arab Emirates (UAE)), Mohammed Rashid (American University of Sharjah, United Arab Emirates (UAE)), Rizwan Hassan (American University of Sharjah, United Arab Emirates (UAE))	295
An analytical evaluation of Top-Down versus Bottom-Up forecast in the electricity demand	
Hiroshi Chin (The University of Tokyo, Japan), Rikiya Abe (the University of Tokyo, Japan)	297
Advanced Techniques in Industry Applications  Adaptive Inverse Dynamics Control for a Two-Compartment Respiratory System	
Jiann-Shiou Yang (University of Minnesota Duluth, USA)	299
A PMOS-Driven H-Bridge without Dead Time for Industry Applications	
Hsin-Chuan Chen (St. John's University, Taiwan)	301
Eye detection in CSBS-DP evaluation video	
Kun-Hsien Tung (Chung Yuan Christian University, Taiwan), Mei-Yi Huang (Chung Yuan Christian University, Taiwan), Chih-Yi Li (Chung Yuan Christian University, Taiwan), Ting-Lan Lin (Chung Yuan Christian University, Taiwan), Chu-Sui Lin (Chung Yuan Christian University, Taiwan), Yao-Jen Chang (Chung Yuan Christian University, Taiwan), Shih-Lun Chen (Chung Yuan Christian University, Taiwan), Yaan Christian University, Taiwan), Ya-Shu Kang (Chung Yuan Christian University, Taiwan), Yu-Chi Chou (Chung Yuan Christian University, Taiwan), Yu-Chi Chou (Chung Yuan Christian University, Taiwan), Yu-Shan Huang (Chung Yuan Christian University, Taiwan), Hui-I Tsai (Chung Yuan Christian University, Taiwan)	303
High Capacity Information Hiding Scheme Using VAD Algorithm	
Rong-San Lin (Southern Taiwan University of Science and Technology, Taiwan)	305
Design on ESD Robustness of Source-side Discrete Distribution in the 60-V High-Voltage nLDMOS Devices	
Shen-Li Chen (National United University, Taiwan), Chih-Hung Yang (National United University, Taiwan), Chih-Ying Yen (National United University, Taiwan), Kuei-Jyun Chen (National United University, Taiwan), Jia-Ming Lin (Peking University, P.R. China)	307

#### Novel Applications of Factor Analysis in Speech Processing and Learning Technology

Leveraging Nonnegative Matrix Factorization in Processing the Temporal Modulation Spectrum

	for Speech Enhancement	
	Syu-Siang Wang (Research Center for Information Technology Innovation, Academia Sinica, Taiwan), Jeremy Chiaming Yang (Research Center for Information Technology Innovation, Academia Sinica, Taiwan), Yu Tsao (Research Center for Information Technology Innovation,	
	Academia Sinica, Taiwan), Jeih-weih Hung (National Chi Nan University, Taiwan)	309
	Linear Prediction Filtering on Cepstral Time Series for Noise-Robust Speech Recognition	
	Hsin-Ju Hsieh (National Chi Nan University, Taiwan), Jhih-Hao Jheng (National Chi Nan University, Taiwan), Jung-Shan Lin (National Chi Nan University, Taiwan), Jeih-weih Hung (National Chi Nan University, Taiwan)	311
	Speech Enhancement via Ensemble Modeling NMF Adaptation	
	Jeremy Chiaming Yang (Research Center for Information Technology Innovation, Academia Sinica, Taiwan), Syu-Siang Wang (Research Center for Information Technology Innovation, Academia Sinica, Taiwan), Yu Tsao (Research Center for Information Technology Innovation, Academia Sinica, Taiwan), Jeih-weih Hung (National Chi Nan University, Taiwan)	313
	Offline Answering Function for Fill-in-blank Problems in Java Programming Learning Assistant System	
	Nobuo Funabiki (Okayama University, Japan), Hiroki Masaoka (Okayama University, Japan), Nobuya Ishihara (Okayama University, Japan), I-Wei Lai (Chang Gung University, Taiwan), Wen-Chung Kao (National Taiwan Normal University, Taiwan)	315
Moderr	n Spectrum Analysis Technique for Multimedia Signal Processing Applications	
	Improving Iris Image Segmentation in Unconstrained Environments using NMF-based Approach	
	Andri Santoso (National Central University, Taiwan), Shabrina Choirunnisa (National Central University, Taiwan), Bima Prihasto (National Central University, Taiwan), Jia-Ching Wang (National Central University, Taiwan)	317
	NMF-Based Image Segmentation	
	Viet-Hang Duong (National Central University, Taiwan), Yuan-Shan Lee (National Central University, Taiwan), Bach-Tung Pham (National Central University, Taiwan), Pham The Bao (HCMUS, Vietnam), Jia-Ching Wang (National Central University, Taiwan)	319
	Numerically Stable Filter Design with Derivative Constraints at Three Frequencies	0_2
	Peng-Hua Wang (National Taipei University, Taiwan)	321
	Improved Frequency Table Adjusting Algorithms for Context-Based Adaptive Lossless Image Coding	
	Jian-Jiun Ding (National Taiwan University, Taiwan), I-Hsiang Wang (National Taiwan University, Taiwan)	323
	Morphology-Based Disparity Estimation and Rendering Algorithm for Light Field Images Jian-Jiun Ding (National Taiwan University, Taiwan), Neng-Chien Wang (National Taiwan University, Taiwan), Shih-Chang Chuang (National Taiwan University, Taiwan), Ronald Y. Chang (Academia Sinica, Taiwan)	325
Enablir	ng Technologies for Smart TV	
	Speaker Identification for Personalized Smart TVs	
	Wei-Ho Tsai (National Taipei University of Technology, Taiwan), Jui-Che Lin (National Taipei University of Technology, Taiwan), Cin-Hao Ma (National Taipei University of Technology, Taiwan), Yuan-Fu Liao (National Taipei University of Technology, Taiwan)	327
	Power-Aware Adaptive Video Streaming from the Set-Top-Box to Mobile Devices	
	Shih-Hsuan Yang (National Taipei University of Technology, Taiwan), Guo-Chin Sun (National Taipei University of Technology, Taiwan)	329

A Design Framework for Smart TV: Case Study of the TaipeiTech Smart TV System	
Shih-Hsuan Yang (National Taipei University of Technology, Taiwan), Xiu-Wen Liu (National Taipei University of Technology, Taiwan), Ying-Chen Lo (National Taipei University of	
Technology, Taiwan)	331
Depth and Color-based Three Dimensional Natural User Interface	
Yu-Cheng Fan (National Taipei University of Technology, Taiwan)	333
Smart TV Tangible Interaction Natural User Interface Design in the Scenario of Future Classroom	
Sheng-Ming Wang (National Taipei University of Technology, Taiwan), Shu-Xuan Lin (National Taipei University of Technology, Taiwan), Chieh-Ju Huang (National Taipei University of Technology & Chienkuo Technology University, Taiwan)	335
Next Generation Multimedia and Communication Technologies	
Design of Three Dimensional Gestures Interactive Displays Based on Complex Background	
Yu-Cheng Fan (National Taipei University of Technology, Taiwan)	337
A New SDN-Based Authentication Architecture and Method for Taiwan High Speed Rail	
Yi-Hao Lin (National Chiao Tung University, Taiwan), Ping-Fan Ho (National Chiao Tung University, Taiwan), Jyh-Cheng Chen (National Chiao Tung University, Taiwan)	330
A Vision-based Human Identification Method	333
Guo-Shiang Lin (Da-Yeh University, Taiwan), Minh-Tuan Nguyen (Da-Yeh University, Vietnam)	341
An Brain-Computer Interface for Video Content Analysis System for Perceive Emotions by using EEG	
Min-Liang Wang (National Chin-Yi University, Taiwan)	343
Vessel Segmentation Based on Bone-to-Bone Elimination in Brain CT Angiography	
Ku-Yaw Chang (Da-Yeh University, Taiwan), Yu-Hsun Wu (DaYeh University, Taiwan), Wei-Lu Lin (DaYeh University, Taiwan), Shao-Jer Chen (Buddhist Tzu Chi University, Taiwan), Lih- Shyang Chen (Cheng-Kung University, Taiwan)	345
Laparoscopic video augmentation with infrared image information	
Atul Kumar (IRCAD-Taiwan & Chang Bing Show Chwan Memorial Hospital, Taiwan), Shih-Wei Huang (Chang Bing Show Chwan Memorial Hospital, Taiwan), Yen-Yu Wang (National Changhua University of Education, Taiwan), Wan-Chi Hung (Chang Bing Show Chwan Memorial Hospital, Taiwan), Kai-Che Liu (Industrial Technology Research Institute, Taiwan),	
Chingchun Huang (National Chung Cheng University, Taiwan)	347
Innovative Digital Media Processing and Coding	
Fast Sample Adaptive Offset Encoding for HEVC	
Tien-Ying Kuo (National Taipei University of Technology, Taiwan), Hai Chiu (National Taipei University of Technology, Taiwan), Fajri Amirul (National Taipei University of Technology, Taiwan)	349
A Novel Approach for Single Channel Source Separation	
Yan-Bo Lin (National Central University, Taiwan), Yuan-Shan Lee (National Central University, Taiwan), Tuan Pham (National Central University, Taiwan), Tzu-Chiang Tai (Providence University, Taiwan), Jia-Ching Wang (National Central University, Taiwan)	351
Seamless Vertical Handover for Video Streaming with Dynamic Multipath TCP	
Chih-Wei Huang (National Central University, Taiwan), Shih-Hao Ou (National Central University, Taiwan), Yang-Shan Su (National Central University, Taiwan)	353
Efficient Content-based Cropping Using Visual Saliency and SLIC for Image Retargeting	
Yung-Chieh Chou (National Central University, Taiwan), Po-Chyi Su (National Central University, Taiwan)	355

Dynamic Voltage and Frequency Scaling	i based Parallel	Scheduling	Scheme for	Video
Recognition on Multicore Systems				

Yen-Lin Chen (National Taipei University of Technology, Taiwan), Ming-Feng Chang (National Taipei University of Technology, Taiwan), Wen-Yew Liang (National Taipei University of Technology, Taiwan)

#### **Circuits and Systems for Consumer Electronics**

Low Noise X-band Frequency Synthesizer for 5G Applications	
Kang-Chun Peng (National Kaohsiung First University of Science and Technology, Taiwar Chiu-Chin Lin (National Kaohsiung First University Science Technology, Taiwan), Zu-Han (NKFUST, Taiwan), Chien-Chang Chen (Metal Industries Research & Development Centre Taiwan), Che-Chang Hsu (Metal Industries Research & Development Centre, Taiwan)	Ĺin e,
Design of Fractional Hilbert Transformer Using Fractional Sample Delay	
Chien-Cheng Tseng (Kaoshiung first University of Science and Technology, Taiwan), Su- Lee (Chang-Jung Christian University, Taiwan)	_
n Open-Loop Fractional Divider Based on Direct Phase Synthesis	
Pao-Lung Chen (National Kaohsiung First University of Science and Technology, Taiwan)	363
Low-Cost Carry Look-Ahead Adder for Flying-Adder Frequency Synthesizer	
Pao-Lung Chen (National Kaohsiung First University of Science and Technology, Taiwan)	365
Hardware-Efficient BCH Encoder Design	
Jui-Hung Hsieh (National Kaohsiung First University of Science and Technology, Taiwan)	367
Development of A Smart Home Energy Saving System Combining Multiple Smart Devices	
Ming-Tang Chen (National Kaohsiung University of Applied Science, Taiwan), Che-Min Lin	
(National Kaohsiung University of Applied Sciences, Taiwan)	369