# 2018 12th IEEE International Conference on Anti-counterfeiting, Security, and Identification (ASID 2018)

Xiamen, China 9-11 November 2018



**IEEE Catalog Number: CFP1820C-POD ISBN**:

978-1-5386-6064-5

## Copyright © 2018 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 is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP1820C-POD

 ISBN (Print-On-Demand):
 978-1-5386-6064-5

 ISBN (Online):
 978-1-5386-6063-8

ISSN: 2163-5048

#### **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



## **Table of Contents**

### **Deep Learning and Recognition Computing**

0001-1570477948	Cross-Domain Age Inference Framework Based on Common-Topics Tingting Feng, Xiaoyu Li, Yuchun Guo*, Shuaifu Dai	1
0002-1570486719	Hardware Oriented Vision System of Logistics Robotics Feng Liang, Chun Zhang	6
0003-1570483294	Improving the Quality of Crowdsourcing Labels by Combination of Golden Data and Incentive Peijun Yang*, Haibin Cai, Zhiming Zheng	10
0004-1570492346	Pdf Exploitable Malware Analysis Based on Exploit Genes Xin Zhou, Jianmin Pang*, Fudong Liu, Jun Wang, Feng Yue, Xiaonan Liu	16
0005-1570488407	Improving       the       Generalized       Performance       of       Deep       Embedding       for         Text-Independent Speaker Verification         Rongjin Li, Lin Li*, Qingyang Hong, Huiyang Guo, Miao Zhao	21
0006-1570482550	Survey on Real-time Anomaly Detection Technology for Big Data Streams Yuanyan Luo; Xuehui Du; Yi Sun	26
0007-1590489001	Classification of Arc Welding Joints Images Based on Convolutional Neural Network  Peng Zheng, Jiechang Chen, Shaofeng Ye, Peter Ott, Lei Wang*	31
0008-1570470968	Time-Frequency Analysis of Electrostatic Discharge Signal Based on Wavelet Transform Cheng Cong, Fangming Ruan*, Di Deng, Ming Su; David Pommerenke	35
0009-1570480379	Face Detection Algorithm with Multi-stage Decision Based on Skin-color and Geometrical Features  Yin-Cheng Yi, Gui Feng	39
0010-1570490471	Face Recognition by Feature Extraction and Classification  Xinzheng Chen, Lihong Song, Chaochao Qiu	43
0011-1570482052	CNN-based Adaptive Intelligent Driving and Algorithm Optimization  ZhongTong Li, Cong Jin, HongLiang Wang	47
	Big Data and Information Security	
0012-1570477504	Improvements of the Ate-Pairing Used for IBC Yi Wu, Guantong Su, Jian Long Su, GuoQiang Bai, XingJun Wu*	52
0013-1570468205	Improving the Accuracy of Rating Prediction with User Attention Degree  Meiling Liu, Leihui Chen	56

0014-1570492328	Multi-data Aggregation Scheme Based on Multiple Subsets to Realize User Privacy Protection  Xuhui Yang, Shaomin Zhang*, Baoyi Wang	61
0015-1570470199	Analysis of Electrostatic Discharge Parameters Affected by Velocity of Electrodes Based on Neural Network  Sheng Guan, Fangming Ruan*, Ming Su, Heng Wang	66
0016-1570487324	Research on Operating Data Analysis for Enterprise Intranet Information Security Risk Assessment  Hao Wang, Junhao Li*, Dong Liu	72
0017-1570482378	Anomaly Detections for CPSs Based on Quantitative Dependence Metrics Xiaoxue Liu; Peidong Zhu; Deepa Kundur	77
0018-1570481553	A Spread-Spectrum Watermarking Scheme with Adaptive Embedding Strength and PSNR Guarantee  Ying Huang, Hu Guan, Baoning Niu*, Shuwu Zhang	82
0019-1570482362	The Invalid Keys Phenomenon in One-dimensional Chaotic Dynamic Systems Wenxia Ding*, Guizhu Lu, Jian Chen, Yanyu Ding, Wang Hao	88
0020-1570488711	Research on MPPT of Photovoltaic Generation Based on Fuzzy PID Control Xueqin Zheng*, Mingquan Chen	93
0021-1570492310	A Secure Solution of V2G Communication Based on Trusted Computing Shuai Wang, Baoyi Wang*, Shaomin Zhang	98
	Cloud Computing & Internet of Things (IoT) (8篇)	
0022-1570481708	Quantitative Analysis on Mathematical Morphology  Junping Wang, Yiping Pan, Yanbo Li*, Lulu Zhao	103
0023-1570486710	Design of Ethernet Platform of SOPC Based on ARM Soft Core Min He, Xiaohong Peng*, Xiaodan Li, Rui Wang, Jianing Du	107
0024-1570487268	Identification in the Terahertz Domain Using Low Cost Tags with a Fast Spectrometer  Maher Hamdi, Florent Bonnefoy, Maxime Bernier, Frédéric Garet, Etienne Perret, Nicolas Barbot, Romain Siragusa, David Hely and Eiji Kato	111
0025-1570486954	Plate Recognition Based on Deep Learning Ling Tang, Zhibin Gao*, Lianfen Huang	116
0026-1570477669	Information System Security Risk Assessment Based on IDAV Multi-Criteria Decision Model  Jinning Yang*, Jiazhen Han, Xiuyan Zhang	121

0027-1570477951	A Further Research on Two-phase Decoding for GC-LDPC Codes Wei Zhou, Lijun Zhang, Qiang Sun	128
0028-1590489005	Novel Binary Adaptive Morphological Operators  Yanbo Li, Junping Wang	132
0029-1570477408	The Data-Driven Multivariate Process Monitoring and Diagnosis of Rides in an Amusement Park  Hongguang Wen, Yin Zhao*, Wenjun Chen	136
	Cryptographic Algorithm and Security Management	
0030-1570486733	A Reconfigurable Coprocessor for Public-Key Cryptography  JianLong Su, Yi Wu, GuoQiang Bai, XingJun Wu*	141
0031-1570488377	Detection System of Single Event Upset Based on FPGA Bobo Feng, Cuiping Shao, Huiyun Li	146
0032-1570486590	A Novel Trojan Side Channel for Attacking Masking Yulin Zhao, Jiayou Song*, XingJun Wu, Liji Wu*, Xiangmin Zhang	151
0033-1570486407	Hardware Design of Lightweight Steam Cipher PUFFIN Algorithm for Anti-cooperation  Dewei Wang, Zhenhui Zhang*, Liji Wu*, Xiangmin Zhang	155
0034-1570478236	Classification of Polarizing Matrices Based on Bhattacharyya Parameters Lei Cheng, Lijun Zhang, Qiang Sun	159
0035-1570486647	Analysis on Key-leakage Hardware Trojan of SM4 Algorithm Yue Chen, ZhenHui Zhang*, Liji Wu*, Xiangmin Zhang, Yijun Yang	164
0036-1570486053	Two Encryption Schemes of Finger Vein Template  Jia Zhang*; Peiyu Fang	169
0037-1570486860	High-speed Pipeline Design for HMAC of SHA-256 with Masking Scheme Zhenhao He, Liji Wu*, Xiangming Zhang	174
0038-1570487288	A Novel SPA on ECC with Modular Subtraction Yanzhao Yin, Liji Wu*, Qian Peng, Xiangmin Zhang	179
0039-1570482426	PMU-extended Hardware ROP Attack Detection Weiwei Li, Mingshu Li*, Yue Ma, Qiusong Yang	183
	IC Design and System Integration	
0040-1570486444	Power Analysis on SM4 Algorithm with Boosting Methods  Mengmeng Xu, Liji Wu*, Xiangmin Zhang	188
0041-1590489004	Research on NVIDIA Deep Learning Accelerator  Gaofeng Zhou, Jianyang Zhou*, Haijun Lin	192

0042-1570487595	LMS Based SNR and SFDR Boost Algorithm Used in High Resolution A/D Converters  Ting Li *, Yong Zhang, Zhengbo Huang, Yabo Ni	196
0043-1570489685	ADC of near Infrared Charging with PLL and Wide Bandgap Reference for Wireless Power Transfer  Wen-Cheng Lai, Yi Wu, Jhin-Fang Huang	200
0044-1590489003	An Efficient Clock Tree Synthesis Method with Manual Hierachical Operation  Jun Li, Peiyuan Wan*, Baolu Guan, Limei Su, Pengyu Ma, Zhijie Chen	204
0045-1590489002	Digital Filter Design of A High Resolution Audio Sigma-delta ADC  Qifeng Huang, Peiyuan Wan*, Xuesong Xie, Chuankai Wang, Limei Su, Zhijie Chen	208
0046-1570483097	Efficient FPGA Implementation of Softmax Function for DNN Applications  Zhenmin Li, Henian Li, Xiange Jiang, Bangyi Chen, Yue Zhang, Gaoming Du*	212
0047-1570482344	An Offset Calibration Technique in a SAR ADC for Biomedical Applications Zhaozhe Liu, Wensi Wang, Peiyuan Wan, Jiarong Geng, Zhijie Chen	217
0048-1570490451	Low Power Design of Embedded SOC for TPM with Standard Library of 28Nm CMOS  Jiebin Su, Shan He*, Zhaoqing Yang, Hongyin Luo, Zhixin Zhou, Donghui Guo	221
0049-1570482573	A Low-Latency Adaptive NoC Routing Scheme Based on Traffic Monitoring Zhenmin Li, Gaoming Du*, Renshi Fan, Qiyu Lu, Duoli Zhang, Yiming Ouyang	226
	Wearable Electronics and Health & Leisure	
0050-1570486415	DesignofPortableTranscutaneousVagusNerveStimulatorBasedonMicrocontrollerXiaodan Li, Xiaohong Peng*, Min He, Rui Wang, Jize Guo	231
0051-1570486397	Research on Augmented Reality System for Childhood Education Reading Liyan Chen, Xiaoxia Yang*, Beizhan Wang*, Yang Shu, Hao He	236
0052-1570479350	Design of Wearable Power Management Circuit with Improved Beta-Multiplier Voltage Reference Shuai Yu Mao, Wensi Wang*, Yun Liu, Zhijie Chen	240
0053-1570486348	Modeling of Airflow-Based Lung Sound for Characterization of Bronchi Fengyi Shang, Zheng Li, Lin Li*, Donghui Guo	245
0054-1570486732	An Improved Binarized Weight Classification Network  Zheng Shen, Yuan Yang*	250
0055-1570479347	A Single Stage DC-DC Power Management IC with MPPT for uA/mA-Scale PV Energy Harvesting Applications  Yun Liu, Wensi Wang*, ShuaiYu Mao, Xu Liu	254