

2017 IEEE 15th International Conference on Software Engineering Research, Management and Applications (SERA 2017)

**London, United Kingdom
7-9 June 2017**



**IEEE Catalog Number: CFP17386-POD
ISBN: 978-1-5090-5757-3**

**Copyright © 2017 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:	CFP17386-POD
ISBN (Print-On-Demand):	978-1-5090-5757-3
ISBN (Online):	978-1-5090-5756-6

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

Keynote	1
Empirical Research Methods for Software Engineering <i>Simon Xu</i>	1
Software Abstractions and Architectures for Smart Cyber-Physical Systems <i>Petr Hnetyinka</i>	3
Analysis and Design of Algorithms / Program	5
A Confidentiality Preserving Publicly Verifiable Computation for Multivariate Polynomials <i>Jiameng Sun, Binrui Zhu, Jing Qin, Jixin Ma</i>	5
Business Process Engineering	13
A Server Selection Strategy about Cloud Workflow based on QoS Constraint <i>Futian Wang, Ke Fang, Jin Tang, Cheng Zhang</i>	13
Communication Systems and Networks	19
A Bisectional Multivariate Quadratic Equation System for RFID Anti-Counterfeiting <i>Xiaoyi Zhou, Xiaoming Yao, Honglei Li, Jixin Ma</i>	19
Remote Sensing of Damage Bridge Structure of Free Vibration by Using Finite Element Method Based on Jerk-Energy <i>Bouyahi Mohamed, Ezzedine Tahar, Rezig Houria</i>	25
Efficient Composite Event Detection Based on DHT Protocol <i>Amina Chaâbane, Salma Bradai, Wassef Louati, Mohamed Jmaiel</i>	31
Data Mining and Knowledge Recovery	39
Modern Predictive Models for Modeling the College Graduation Rates <i>Emma A. Gunu, Carl Lee, Wilson K. Gyasi, Robert M. Roe</i>	39
Enterprise Map Construction based on EOLN model <i>Qiwen Zhang, Yunchan Sun, Rongfang Bie</i>	47
Generation of Reducts and Threshold Functions Using Discernibility and Indiscerniblity Matrices <i>Naohiro Ishii, Ippei Torii, Kazunori Iwata, Kazuya Odagiri, Toyoshiro Nakashima</i>	55
LogSumExp for Unlabeled Data Processing <i>Taocheng Hu, Jinhui Yu</i>	63
Design and Process Engineering	71
The Analysis and Prediction of Customer Review Rating Using Opinion Mining <i>Wararat Songpan</i>	71
Sentiment Analysis on Social Media Using Morphological Sentence Pattern Model <i>Youngsub Han, Kwangmi Ko Kim</i>	79
Healthcare Information Engineering	85
On Blockchain-Based Anonymized Dataset Distribution Platform <i>Shinsaku Kiyomoto, Mohammad Shahriar Rahman, Anirban Basu</i>	85
A Smart Health Service Model For Elders Based On ECA-S Rules <i>Shujie Hu, Mengxing Huang, Wenlong Feng, Yu Zhang</i>	93
An Analysis of the Health Care Platform in the Cloud Environment <i>Honglei Li, Qi Chen, Xiaoyi Zhou</i>	99

The Impacts of Consumer's Health Topic Familiarity in Seeking Health Information Online Ira Puspitasari	103
Image Processing	111
Manifold Ranking Weighted Local Maximal Occurrence Descriptor for Person Re-identification Fogin Wang, Xuehan Zhang, Jixin Ma, Jin Tang, Aihua Zheng	111
Salient Object based Action Recognition using Histogram of Changing Edge Orientation (HCEO) Hnin Mya Aye, Sai Maung Maung Zaw	115
Automatic Facial Expression Recognition Based on a Deep Convolutional-Neural-Network Structure Ke Shan, Junqi Guo, Wenwan You, Di Lu, Rongfang Bie	123
Feature Based Disparity Estimation Using Hill-Climbing Algorithm Tin Tin San, Nu War.....	129
An Encrypted Medical Image Retrieval Algorithm Based on DWT-DCT Frequency Domain Chunyan Zhang, Jingbing Li, Shuangshuang Wang, Zhaojun Wang	135
A Robust Algorithm of Encrypted Medical Volume Data Retrieval Based on 3D DWT and 3D DFT Shuangshuang Wang, Jingbing Li, Chunyan Zhang, Jintao Liang, Zhaojun Wang.....	143
A New Graph Ranking Model for Image Saliency Detection Problem Yuanyuan Guan, Bo Jiang, Yun Xiao, Jin Tang, Bin Luo	151
Gabor-Feature-Based Local Generic Representation for Face Recognition with Single Sample per Person Taher Khadhraoui, Faouzi Benzarti, Hamid Amiri	157
Image Mosaicking for Oversized Documents with a Multi-Camera Rig Zhen Wang, Feilin Han, Weidong Geng	161
Information Assurance	169
An Improved Information Hiding Algorithm based on Image Ziqian Yuan, Zijie Guan, Hao Feng	169
Mobile / Wireless Computing	173
Detection and Mitigation of Wireless Link Layer Attacks May Aye Chan Aung, Khin Phyo Thant.....	173
Model Driven Architecture	179
Model Driven Development of Mobile Applications Using Drools Knowledge-based Rule Ei Ei Thu, Nwe Nwe	179
Object-Oriented Technology	187
Reusable Components For Adding Multi-Tenancy to Legacy Applications Uwe Hohenstein, Preeti Koka	187
Parallel and Distributed Computing	195
CloudSim4DWf: A CloudSim-Extension for Simulating Dynamic Workflows in a Cloud environment Fairouz Fakhfakh, Hatem Hadj Kacem, Ahmed Hadj Kacem	195
Reliability Modeling and Analysis	203
A Reliability Evaluation Model of Distributed Autonomous Robotic System Architectures Xin He, Changbin Xue, Qing Zhou, Kexin Lin	203
Application of Support Vector Machine with Simulated Annealing Algorithm in MBR Membrane Pollution Prediction Chunqing Li, Yingxin Tao	211

Reverse Engineering, Reengineering	219
On the Use of Visual Clustering to Identify Landmarks in Code Navigation <i>Sandeep Reddivari, Mahesh Koapalli</i>	219
Software Engineering	229
Coordination Support for Integrating User Centered Design in Distributed Agile Projects <i>Ohoud Almughram, Sultan Alyaha</i>	229
Visualization of Online Datasets <i>Christopher Johnston Downie, Taoxin Peng</i>	239
Curricular Change Management with Git and Drupal <i>Abhishek Tirkey, Kevin A. Gary</i>	247
An Empirical Investigation of the Software Integration Success Factors in GSD Environment <i>Muhammad Ilyas, Siffat Ullah Khan</i>	255
Software Performance Prediction	263
Software Performance Prediction at Source Level <i>Erh-Wen Hu, Bogong Su, Jian Wang</i>	263
Software Reuse and Metrics	271
An Automated Code Smell and Anti-Pattern Detection Approach <i>Sevilay Velioglu, Yunus Emre Selcuk</i>	271
A Framework of Software Reusing Engineering Management <i>Xin TAO, Yang LIU</i>	277
Policy Enforcement upon Software Based on Microservice Architecture <i>Tugrul Asik, Yunus Emre Selcuk</i>	283
Identifying and Localizing the Inter-Consistency Errors Among UML Use Cases and Activity Diagrams: An Approach Based on Functional and Structural Size Measurements <i>Hela Hakim, Asma Sellami, Hanène Ben-Abdallah</i>	289
Software Testing	297
Effects of FSM Minimization Techniques on Number of Test Paths in Mobile Applications MBT <i>Maiada M. Shabaan, Haitham S. Hamza, Yasser M. K. Omar</i>	297
Data Analytics and Applications	303
Research on the Construction of Semantic Dictionary in the Football Field <i>Jiguang Wu, Ying Li</i>	303
Data Analysis with Multi-objective Optimization Algorithm: a Study in Smart Traffic Signal System <i>Pengzhe Zhou, Zhiyi Fang, Hongliang Dong, Jiayue Liu, Shuaining Pan</i>	307
Data Structure and Triangulation Algorithm for Non-Uniform Landscapes <i>Yasunori Shiono, Takaaki Goto, Kensei Tsuchida</i>	311
Predicting Gross Domestic Product Using Autoregressive Models <i>John Roush, Keith Siopes, Gongzhu Hu</i>	317
Study and Realization of a CRM System in Fuxin Bank <i>Qingxing Guo, Zhendong Xie, Xi Ning</i>	323
Specifying Architecture of Knowledge Graph with Data Graph, Information Graph, Knowledge Graph and Wisdom Graph <i>Yucong Duan, Lixu Shao, Gongzhu Hu, Zhangbing Zhou, Quan Zou, Zhaoxin Lin</i>	327
A stochastic revelation on the deterministic morphological change of 3x+1 <i>Yucong Duan</i>	333

Bidirectional Value Driven Design between Economical Planning and Technical Implementation Based on Data Graph, Information Graph and Knowledge Graph	
<i>Lixu Shao, Yucong Duan, Xiaoing Sun, Quan Zou, Rongqi Jing, Jiami Lin</i>	339
Research on Service Recommendation Reliability in Mobile Computing	
<i>Weng Wen, Huaikou Miao</i>	345
On the Estimation of Time Series Data of Daily Life	
<i>Teruhisa Hochin, Hiroki Nomiya</i>	351
Analysis of Perception of People to School Mottoes	
<i>Rieko Fujita, Tokuro Matsuo, Teruhisa Hochin</i>	357
Analysis of Road Traffic Fatal Accidents Using Data Mining Techniques	
<i>Liling Li, Sharad Shrestha, Gongzhu Hu</i>	363
Internet of People and Things	371
An Eye for Deception: A Case Study in Utilising the Human-As-A-Security-Sensor Paradigm to Detect Zero-day Semantic Social Engineering Attacks	
<i>Ryan Heartfield, George Loukas, Diane Gan</i>	371
Evaluating the Impact of Malicious Spoofing Attacks on Bluetooth Low Energy Based Occupancy Detection Systems	
<i>William Oliff, Avgoustinos Filippoupolitis, George Loukas</i>	379
Assessing the Cyber-Trustworthiness of Human-as-a-sensor Reports from Mobile Devices	
<i>Syed Sadiqur Rahman, Ryan Heartfield, William Oliff, George Loukas, Avgoustinos Filippoupolitis</i>	387
ASTo: A Tool for Security Analysis of IoT Systems	
<i>Orestis Mavropoulos, Haralambos Mouratidis, Andrew Fish, Emmanouil Panaousis</i>	395
Security and Privacy Requirements Engineering for Human Centric IoT Systems using eFRIEND and Isabelle	
<i>Florian Kamm'uller and Juan C. Augusto and Simon Jones</i>	401
A Communication Gateway Architecture for Ensuring Privacy and Confidentiality in Incident Reporting	
<i>Christos Chatzigeorgiou, Lazaros Toumanidis, Dimitris Kogias, Charalampos Patrikakis, Eric Jacksch</i>	407
Author Index	412