

2017 5th International Conference on Enterprise Systems (ES 2017)

**Beijing, China
22-24 September 2017**



**IEEE Catalog Number: CFP17ESU-POD
ISBN: 978-1-5386-0937-8**

**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: | CFP17ESU-POD |
| ISBN (Print-On-Demand): | 978-1-5386-0937-8 |
| ISBN (Online): | 978-1-5386-0936-1 |
| ISSN: | 2377-8636 |

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

CURRAN ASSOCIATES INC.
proceedings
.com

2017 5th International Conference on Enterprise Systems

ES 2017

Table of Contents

| | |
|----------------------------|----|
| Preface..... | x |
| Organizing Committees..... | xi |

Special Session on Big Data in Smart Grid

| | |
|----------------------------------------------------------------------------------------------------------------|---|
| The Location and Capacity of Distributed Generation Based on Genetic Algorithm | 1 |
| <i>Ze Zhou Ye, Rongheng Lin, Hua Zou, Budan Wu, and Naiwang Guo</i> | |
| Data Cleaning Method Based on Time Series Similarity Measurement for Large-Scale Smart Grid Load Data | 7 |
| <i>Yu Lei, RongHeng Lin, Hua Zou, Shiqi Zhou, and Yong Zhang</i> | |

Special Session on Industry 4.0 for Healthcare and Aging Population

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Learning Action Pattern for Activity Recognition | 13 |
| <i>Jingyi Feng, Anlong Ming, Chao Yao, and Yu Zhou</i> | |
| Magnetic Sensing of Magnetization in Magnetotactic Bacteria with Nitrogen Vacancy Centers in Dimond | 18 |
| <i>Ning Zhang, Chen Zhang, Lixia Xu, Guodong Bian, Zheng Lisha, and Heng Yuan</i> | |
| A Proposal of NV Center in Nanodiamond Based Magnetometer toward Human Neuron AP Detection | 22 |
| <i>Heng Yuan, Jixing Zhang, Chen Zhang, Ning Zhang, Lixia Xu, Guodong Bian, Ruiyuan Li, Gangyuan Zhang, Pengcheng Fan, Jiancheng Fang, Bo Li, Zhibo Pang, and Lisha Zheng</i> | |

Special Session on Big Data and IIoT for the Ocean

| | |
|--------------------------------------------------------------------------------|----|
| Typhoon Early Warning Modeling for Regional Disaster Evaluation | 26 |
| <i>Di Wu, Mengxing Huang, Uzair Aslam Bhatti, Zelong Li, and Haojing Zhang</i> | |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----|
| Articulation Work in Subsea Operations: Taking Teamwork Seriously in Assessment of Subsea Operations | 30 |
| <i>Yushan Pan, Eirik Homlong, Hans Petter Hildre, and Steinar Nistad</i> | |
| Big Data Analytics for Air Quality Monitoring at a Logistics Shipping Base via Autonomous Wireless Sensor Network Technologies | 38 |
| <i>Judith Molka-Danielsen, Per Engelseth, Veronika Olešnaníková, Peter Šarafín, and Róbert Žalman</i> | |
| Special Session on Cloud Manufacturing and Industrial 4.0 | |
| A XML Based Information Integration for Field Layer, MES and ERP | 46 |
| <i>Yimei Yang, Chao Yin, and Xiaobin Li</i> | |
| The Supply Chain Network on Cloud Manufacturing Environment Based on COIN Model with Q-Learning Algorithm | 52 |
| <i>Peng Jinqi, Peng Taiyang, and Ren Lei</i> | |
| A Recommendation System for Collaborative Visualization Platforms | 58 |
| <i>Taiyang Peng and Peng Jinqi</i> | |
| Genetic Algorithm Based Novel Methodology of Multi-Constraint Job Scheduling | 62 |
| <i>Lihong Qiao, Zhenwei Zhang, and Muhammad Kashif Nawaz</i> | |
| Implementation of MTConnect in Machine Monitoring System for CNCs | 70 |
| <i>Siyi Chen, Chao Yin, and Xiaobin Li</i> | |
| Research on the Technical Architecture for Building CPS and Its Application on a Mobile Phone Factory | 76 |
| <i>Zhehan Chen, Xiaohua Zhang, and Ketai He</i> | |
| Hierarchical Scheduling for Multi-Constrained Flexible Job Shop Based on Heuristic and Intelligent Optimization Algorithms | 85 |
| <i>Baoan Han and Jianjun Yang</i> | |
| A Model-Based Method for Assisting Decision Making Process in Product Development | 93 |
| <i>Tewodros Gebrerufael Gebreegziabher, Lihong Qiao, Yifan Qie, and Na Cai</i> | |
| Speeding up 3D Printing Using Multi-Head Slicing Algorithms | 99 |
| <i>Yuexuan Wang, Zhaoquan Gu, Lei Song, Tongyang Li, Heming Cui, and Francis C.M. Lau</i> | |
| Big Data in Wisdom Manufacturing for Industry 4.0 | 107 |
| <i>Jiajun Zhou, Xifan Yao, and Jianming Zhang</i> | |
| A Production-Based Scheduling Model for Complex Products in Cloud Environment | 113 |
| <i>Feng Li, Lin Zhang, and Lei Ren</i> | |

| | |
|---------------------------------------------------------------------|-----|
| A Framework for Agile Configuration of Product Structure Data | 119 |
| <i>Yifan Qie, Lihong Qiao, Jian Zhang, and Pinxue Rao</i> | |

Special Session on Sensing and Data Analytics for Precision Medicine

| | |
|----------------------------------------------------------------------------------------------------|-----|
| Hand Rehabilitation Using Virtual Reality Electromyography Signals | 125 |
| <i>Xuerui Yang, Shih-Ching Yeh, Jian Niu, Yan Gong, and Geng Yang</i> | |
| Effects of Virtual Reality and Augmented Reality on Induced Anxiety | 132 |
| <i>Yuan-Yuan Li, Pin-Hua Chiu, Shih-Ching Yeh, and Chu Zhou</i> | |
| The Application of Surface Electromyography and Pressure System on Cyclists' Body Fatigue | 139 |
| <i>Li-Zhen Zhang, Wan-Xia Sheng, Nan Yang, Qi Shao, and Peng-Fei Sun</i> | |

Special Session on Industrial IoT and Smart City

| | |
|---------------------------------------------------------------------------------------------------------------------------|-----|
| The Research of Long-Chain Wireless Sensor Network Based on 6LoWPAN | 143 |
| <i>Weilan Lin, Zhiyi Fan, Yingchun Zhong, Shuangfei Zi, and Jinchao Xiao</i> | |
| Development of a Generalization Bass Diffusion Model for Chinese Electric Vehicles Considering Charging Stations | 148 |
| <i>Yushan Li, Gangyi Ma, and Lefei Li</i> | |
| Personalization in Dynamic Assortment Planning: An Analysis Based on Multi-Agent Simulation Method | 157 |
| <i>Shuyun Yang and Lefei Li</i> | |
| Studying Subway Operation in Schemes Based on the Combination of Fast and Slow Lines | 163 |
| <i>Gangyi Ma, Yushan Li, and Lefei Li</i> | |
| An Optimized Resource Efficient Approximation of \max^* Operator for Recalculation in Turbo Code Decoder | 168 |
| <i>Ming Zhan, Jun Wu, and Hong Wen</i> | |

Special Session on Intelligent Equipment Modeling, Informatics, and Control

| | |
|--------------------------------------------------------------------------------------------------------------------------|-----|
| A Faster-RCNN Based Chemical Fiber Paper Tube Defect Detection Method | 173 |
| <i>Yuzhou Shi, Yuanxiang Li, Xian Wei, and Yongjun Zhou</i> | |
| Analysis of a Six-Axis Industrial Robot's Dynamic Path Accuracy Based on an Optical Tracker | 178 |
| <i>Zhirong Lin, Houde Dai, Zhouxin Wu, Yadan Zeng, Shijian Su, Xuke Xia, Mingqiang Lin, and Patrick Hung-Hsiu Yu</i> | |
| An Experimental Performance Evaluation of the Orientation Accuracy of Four Nine-Axis MEMS Motion Sensors | 185 |
| <i>Zhirong Lin, Yongsheng Xiong, Houde Dai, and Xuke Xia</i> | |

| | |
|------------------------------------------------------------------------------------------|-----|
| PLL with Piecewise Judgement Function for SMO Beased Sensorless Control of PMSM | 190 |
| <i>Peng Tao, Fengxiang Wang, Xuezhu Mei, and Jinxin Lin</i> | |

Special Session on Human Factors and Ergonomics in Systems

| | |
|------------------------------------------------------------------------------------------------------|-----|
| An Experimental Research Facing to the Humanity Design of HUD Failure Alerts | 195 |
| <i>Feng Chuanyan, Wanyan Xiaoru, Sun Guoqiang, Zhuang Damin, and Wu Xu</i> | |
| Research Methods for Human Activity Space Based on Vicon Motion Capture System | 202 |
| <i>Yahui Bai, Huimin Hu, Yinxia Li, Chaoyi Zhao, Ling Luo, and Rui Wang</i> | |
| How the Antireflection Film Affects the Visual Fatigue by Visual Search Testing | 207 |
| <i>Yunhong Zhang, Chaoyi Zhao, Hong Chen, Haibo Yang, and Yu Chao</i> | |
| The Attitude of Senior Adults to Text Entry of Chinese Characters on the Mobile Devices | 211 |
| <i>Bingjun Xie, Jia Zhou, and Zhe Chen</i> | |
| Construction on Six-Hierarchy Model of Human Factors Analysis and Its Application | 217 |
| <i>Bing Wu, Weiwei Chang, and Xiaolin Ma</i> | |
| Research on High-Risk Industries Safety Competency Evaluation System | N/A |
| <i>Sun Lin-Hui, Zhang Yi-Meng, Cui Kai, Lv Ying, Peng Rong-Jie, Yuan Xiao-Fang, and Wu Kuang</i> | |
| Developing a Virtual Reality Game User Experience Test Method Based on EEG Signals | 227 |
| <i>Guanhua Hou, Hua Dong, and Yang Yang</i> | |
| Construction of Safety Competency Evaluation System for High-Risk Industry | 232 |
| <i>Sun Lin-Hui, Zhang Yi-Meng, Cui Kai, Lv Ying, Peng Rong-Jie, Yuan Xiao-Fang, and Wu Kuang</i> | |
| Research on the Improvement of CNC Machine Tool HMI Based on Eye Tracking Experiment | 239 |
| <i>Zhang, Xinmin, Wang, Xiaoting, and Wang Shiya</i> | |

Special Session on Indoor Localization and Navigation

| | |
|---------------------------------------------------------------------------------------------------------|-----|
| Non-Line-of-Sight Error Analysis Model Based on Fitting | 245 |
| <i>Wen Liu, Zhongliang Deng, Cheng Li, and Xiaohan Yan</i> | |
| Transportation Mode Recognition Algorithm Based on Multiple Support Vector Machine Classifiers | 253 |
| <i>Shaomeng Chen, Haiyong Luo, Fang Zhao, Weichao Yuan, and Mengling Jiang</i> | |

| | |
|----------------------------------------------------------------------------------------------|-----|
| Transportation Mode Recognition Algorithm Based on Bayesian Voting | 260 |
| <i>Qin Yanjun, Jiang Mengling, Yuan Weichao, Chen Shaomeng, and Luo Haiyong</i> | |
| An Effective Algorithm for Detecting and Eliminating Wi-Fi Fingerprint Outliers | 270 |
| <i>Youxiong Wu and Zhaozhui Li</i> | |
| A High Efficiency Twin Coil Ferrite Rod Antenna for RF Energy Harvesting in AM Band | 276 |
| <i>Shihua Cao and Jianqing Li</i> | |

Special Session on Industrial Internet of Things for Smart Manufacturing

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| OPC UA-Based Smart Manufacturing: System Architecture, Implementation, and Execution | 281 |
| <i>Zhe Luo, Seungho Hong, Renzhi Lu, Yuting Li, Xiongfeng Zhang, Jongbeom Kim, Taeyang Park, Meng Zheng, and Wei Liang</i> | |
| A Fairness-Aware Scheduling Algorithm for Industrial Wireless Sensor Networks with Multiple Access Points | 287 |
| <i>Huanguang Shi, Meng Zheng, Wei Liang, Zhe Luo, and Seung Ho Hong</i> | |
| Rotate Vector Reducer Crankshaft Fault Diagnosis Using Acoustic Emission Techniques | 294 |
| <i>Haibo An, Wei Liang, Yinlong Zhang, Yang Li, Ye Liang, and Jindong Tan</i> | |
| Internet-of-Things and Cloud Computing for Smart Industry: A Systematic Mapping Study | 299 |
| <i>Hongyu Pei Breivold</i> | |
| Fault Diagnosis Based on Improved Deep Belief Network | 305 |
| <i>Tianqi Yang and Shuangxi Huang</i> | |
| From Intelligent Manufacturing to Smart Manufacturing for Industry 4.0 Driven by Next Generation Artificial Intelligence and Further On | 311 |
| <i>Xifan Yao, Jiajun Zhou, Jiangming Zhang, and Claudio R. Boër</i> | |
| Self-Organizing Manufacturing: Current Status and Prospect for Industry 4.0 | 319 |
| <i>Jiangming Zhang, Xifan Yao, Jiajun Zhou, Jingfa Jiang, and Xinzhun Chen</i> | |
| Study on Clustering Methodology-Based Garment Size Filing Technology | 327 |
| <i>Zhenzhen Huang</i> | |
| An Example for Industry 4.0: Design and Implementation of a Mobile App for Industrial Surveillance Based on Cloud | 331 |
| <i>Hairong Yan, Jiawen Wang, Yongqun Wang, and Xing Zhou</i> | |
| Author Index | 337 |