Editorial
Special Section on Recent Advances in Artificial Intelligence for Smart Manufacturing – Part I
Intelligent Automation & Soft Computing

Zheng Xu[1], Qingyuan Zhou[2], and Zhiguo Yan[3]

[1]Shanghai University, 149 Yanchang Road, 200335, Shanghai, China
[2]Changzhou Institute of Mechatronic Technology, No.666 Liaohe Road, 213000, Changzhou, Jiangsu Province, P.R. China; Changzhou Key Laboratory of Industrial Internet and Data Intelligence; Changzhou Electronic Commerce Research Institute
[3]The third research institute of the ministry of public security, 339 Bisheng Road, 201142, Shanghai, China

Smart manufacturing, also known as Industry 4.0, refers to the next-generation manufacturing paradigm that aims to make use of smart sensors, cloud computing infrastructures, artificial intelligence or machine learning, advanced robotics to improve manufacturing productivity and cost efficiency. As one of the key enablers for smart manufacturing, the Internet of Things (IoT) enables integration of physical objects with digital systems by offering connectivity of manufacturing devices and systems through sensors or augmented reality. Due to the arrival of big data, Internet of Things, cyber-physical systems, cloud manufacturing, and so on, manufacturing is in the process of undergoing a significant transformation to become more intelligent and automated. More strikingly, various artificial intelligence techniques, machine learning algorithms, and big data analytics are being researched and deployed into remanufacturing context, e.g., design for remanufacturing, advanced remanufacturing process, robotics in manufacturing, critical failure prediction, inventory forecasting, resilient manufacturing networks, closed-loop supply chain management, etc. The purpose of this SI is to provide a forum for researchers and practitioners to exchange ideas and progress in related areas. The special issue is divided in to two parts. This editorial is the first part of the SI.

A hybrid modulation strategy with the fusion of the unipolar and bipolar modulation is proposed by Liao [1]. Numerical and experimental results show the lowest total harmonic distortion, and enhanced zero passage control are achieved by the proposed method, providing a reliable and efficient control strategy for PV grid connecting. Based on theoretical analysis and factor analysis, the conceptual model and research hypothesis for influence factors of energy consumption in operation and maintenance stage are proposed by Zhao et al. [2] to establish structural equation model and to carry out empirical test on conceptual model as well as research and construction. A DC voltage balancing strategy based on active vector correction is proposed by Ji et al. [3]. This strategy is characterized by on-demand active power and equal reactive power among modulars. Zhao and Peng [4] analyses the complex nature of China's manufacturing network in three aspects, which are feature of industry network in general, community structure and industry nodes, using a series of statistics measuring complex network. Xu et al. [5] reports the experimental study of water pressure properties inside crack of Non-ballasted track structure. A storage-based tie-line control loop (STCL) on the basis of C-AGC (STCL-AGC) is proposed by Zhang et al. [6], which makes a better tradeoff in the recovery of the frequency deviations and the unscheduled power exchange. Wu and Yang [7] proposed to perform overall security auditing using dynamic analysis techniques. They focus on data leakage as it is one of the most common vulnerabilities for Android applications. They also present an app auditing system AppWalker, which uses concolic execution on a set of apps. Liu et al. [8] proposed a type of servo control mode for measuring crankshaft based on the four-axis motion system. Abbe probe is integrated with Axis motion system. Gao et al. [9] obtain from the cooling water pipes "embedded" scheme optimization, based on the new Tianjin Haihe river bridge project as the engineering background, construction of the concrete hydration heat temperature rise theory model was set up, with the help of theory formula, the numerical simulation and field measurement, the hydration heat of concrete control method is founded by the test.

ACKNOWLEDGMENTS

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Shengqi Zhang, Bei Yuan, Jianfeng Zhao. Storage-based control loop for AGC to mitigate the tie-lines power excursion between areas.

Wu and Yang. Detecting Android Inter-App Data Leakage Via Compositional Concolic Walking.

Liu Yangpeng, Ding Jianjun, Cao Jingshu, Wang Zhen, Jiang Zhuangde. Research on Measuring Method of Crankshaft Based on Servo Control Mode.

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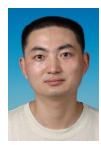
NOTES ON CONTRIBUTORS

Zheng Xu was born in Shanghai, China. He received the Ph.D. degrees from the School of Computing Engineering and Science, Shanghai University, Shanghai, in 2012. He is currently an associate professor with School of Computer Science and Engineering, Shanghai University. From 2014 to 2016 he worked in Tsinghua University as a research assistant professor. From 2012 to 2018, he was with the Third Research Institute of Ministry of Public Security, China. His current research interests include multimedia big data, surveillance systems, and mobile crowd sensing with over 1,500 citations (H-index 21). He has authored or co-authored more than 90 publications including IEEE Trans. On Fuzzy Systems, IEEE Trans. On Automation Science and Engineering, IEEE Trans. On Emerging Topics in Computing, IEEE Trans. on Systems, Man, and Cybernetics: Systems, IEEE Trans. On Cloud Computing, IEEE Trans. on Big Data etc. He is also the associate editor of IEEE Access journal, Intelligent automation& soft computing journal, and Electronic Commerce Research.

Qingyuan Zhou received Ph.D. degrees from Sichuan University (SCU), Chengdu in 2014, respectively. Currently, he is an associate professor in Changzhou Institute of Mechatronic Technology, China. He has joined and accomplished 5 national and 6 provincial research programs. He has also authored/coauthored over 60 papers in international/national journals and conferences including Computers in Human Behavior, Electronic Commerce Research, Intelligent Automation & Soft Computing etc. His current research interests include electronic commerce, artificial intelligence, and computational economics.

Zhiguo Yan received degree certificate of Doctor of Philosophy form Shanghai Jiaotong University in 2008，and accomplished the post-doctor research in Fudan University in 2013. He is a associate professor of the third research institute of Ministry of public security. His scholar interests focus on video intelligent analysis, big data techniques, IoT techniques on public security, etc.