## Editorial

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**Biographical notes:** Qun Ding received her Instrument and Technology Science Doctor's degree at Harbin Institute of Technology in 2007. Now, she is the Dean of Electronic Engineering College, Doctoral Director, Director of Heilongjiang Electronic Engineering Key Laboratory, Director of Heilongjiang Signal and Information Key Laboratory, Councilman of Heilongjiang Communication Institute, and the Panel Judge of national 863 programmes and national nature science fund. Her major research field is the security of information, sensor and encryption communication.

Shifei Ding received his Bachelor's and Master's degrees from Qufu Normal University in 1987 and 1998, respectively. He received his PhD degree from Shandong University of Science and Technology in 2004. He received his Postdoctoral degree from Key Laboratory of Intelligent Information Processing (IIP), Institute of Computing Technology (ICT), Chinese Academy of Sciences (CAS), and his advisor was Professor Z.Z. Shi. And now, he works in China University of Minig and Technology as a Professor and PhD Supervisor. His research interests include artificial intelligence, pattern recognition, machine learning, data mining, and granular computing et al. He has published five books and more than 80 papers in international conferences and journals.

This special issue comprises 15 selected papers from the 2012 International Conference on Information, Computing and Telecommunications (ICICT 2012). The conferences received 1,660 paper submissions from 11 countries and regions, of which 810 were selected for presentation after a rigorous review process. From these 810 research papers, through two rounds of reviewing, the guest editors selected 15 as the best papers of the conference. The candidates of the special issue are all the authors, whose papers have been accepted and presented at the ICICT 2012, with the contents not been published elsewhere before

Information, computing and telecommunications are very hot and important research topics and gain more attention by economy as well as society in recent years. The 2012 International Conference on Information, Computing and Telecommunications (ICICT 2012) was held from January 9–10, 2012 in Harbin, China. This conference is co-sponsored by Harbin University of Science and Technology and International Science and Engineering Research Center, and it is technical co-sponsored by Harbin Engineering University, Northeast Forestry University, Harbin Normal University, Heilongjiang University, Northeast Petroleum University and Harbin University.

'Impact investigation of turbulence image features on the computation of flow kinetic energy', by Zhongwei Liang, Jianhua Tao, Xiaochu Liu and Wu Deng, has quantitative studied the influence of image features on selecting fluid models when computing flow kinetic energy and its spatial distribution simulation, which helps to establishing the influence mechanism and mutual relationship between turbulence image features and the computation of flow kinetic energy.

'Mathematical modelling and solution of pipeline laying problem', by Na Wang, Q. Xu, and Y. Zhang, developing a general approach to the pipeline laying problem with constraints has both theoretical and practical value.

'Simulation platform for microgrid based on photovoltaic generation', by Xiaohui Wang, Jing Wang, and Jia Wang, proposes a simulation system containing PV cell module and power grid, in which the constant power control strategy is utilised to the inverter of PV generator to simulate the grid-connected mode and islanding mode of the system.

'MEGA: a real-time visualisation framework for large-scale terrain', by Haoran Guo, Jianmin Pang, Jintao Yu and Zheng Shan, proposes a fast real-time LOD framework for visualisation of large terrains, including efficient terrain data structure based on hybrid quadtree, as well as GPU-based view-frustum culling, error metric and terrain blocks updating. The proposed framework can greatly improve the rendering efficiency of graphic hardware.

'Forecasting hepatitis epidemic situation by applying the time series model', by Yinping Chen, Aiping Wu, Hongmin Fan and Cuiling Wang, proposes to identify the stochastic autoregressive integrated moving average (ARIMA) model to predict the pulmonary tuberculosis incidence in Qian'an. The model SARIMA $(0,1,1)(0,1,1)_{12}$ was established finally and performed to predict the monthly incidence in 2011.

'Traffic information collecting algorithms for road selection decision support in vehicle ad hoc networks', by Demin Li, Qiuran Li and Jiacun Wang, proposes some traffic information collecting algorithms for road selection decision support in vehicle ad hoc networks and uses multihop packet delivery to detect the traffic density, traffic flow and to decide the path selection by the traffic density.

'A train control system simulation and analysis method', by Yan Zhang, Tao Tang, Wei Zheng, and Hu Niu, proposes a method to simulate a whole railway environment, fulfil the interfaces between subsystems and analyse the specifications of European Train Control System Level-2 (ETCS L2).

'A refined F-M partitioning algorithm for logic simulation', by Jiafang Wang, Yuzhuo Fu and Jianpei Zhang, proposes a multilevel partitioning approach TCFM, which can get fast convergence of F-M algorithm by refining the initial partitioning.

'Forecast model for inner corrosion rate of oil pipeline based on PSO-SVM', by Jingcheng Liu, Hongtu Wang, and Zhigang Yuan, proposes a novel forecast model for the prediction precision of inner corrosion rate of oil pipeline, which combined the superior regression performance of a support vector machine and the global optimisation ability of particle swarm optimisation.

'Geostationary weather radar super-resolution modelling and reconstruction process', by Xuehua Li, Jianxin He, Zishu He and Qiangyu Zeng, proposes a super-resolution model and oversampling technique for the reflectivity data of geostationary weather radar, and the Tikhonov and Truncated singular value decomposition inversion methods are developed for the reconstruction process which could achieve finer structure of weather system beyond the radar's intrinsic measurements. 'Application of multi-resolution modelling in emergency evacuation simulation', by Bo Yang, Yong-gang Wu, and Bo Ren, proposes a method of multi-resolution modelling to simulate the crowd dynamics. The aggregate/disaggregate algorithm of multi-resolution model are presented, which could implement the interaction and parallel computing of the micro simulation model and the macro simulation model.

'Sensing characteristics of conductance sensor for measuring the volume fraction and axial velocity in oil-water pipe flow', by Li Yingwei and Li Xiaoming, proposes an optimised conductance sensor through investigating the output response characteristics, spatial sensitivity, spatial filtering effect and frequency response characteristics and carries out the experiment with a two-phase flow measurement system.

'Stimulus generation for RF MEMS switches test application', by Mingxin Song, Jinghua Yin, Zuobao Cao, Tong Wu, Yu Zhao, Zhao Jin and Amir Zjajo proposes the sinewave signal generation for built-in self-test in analogue/mixed-signal integrated circuit and both the amplitude and the frequency of the signal can be controlled by a DC input voltage and the clock frequency respectively.

<sup>c</sup>CMOS readout circuit for piezo-resistive accelerometer<sup>'</sup>, by Mingyuan Ren and Chunxiang Zhang, proposes a novel low power CMOS interface circuit for piezo-resistive accelerometer, which is based on successive approximation. The circuit is implemented in 0.5  $\mu$ m CMOS process, the testing results indicate that the max auto-zeroing voltage is 500 mV, the resolution is 4 mV, the power consumption is 4.62 mW.

'Design and properties research of capacitive RF-MEMS switch', by Hai Guo, Jinghua Yin, Mingxin Song, and Jingying Zhao, proposes three structure capacitive RF-switches, which were stimulated by the software, and the influences of the switch structure parameters on the driven voltage and nature frequency is studied respectively.

We would like to take this opportunity to thank the authors for the efforts they put in the preparation of the manuscripts and for their valuable contributions. We wish to express our deepest gratitude to the programme committee members for their help in selecting papers for this issue and especially the referees of the selected papers for their thorough reviews under a tight time schedule. Last, but not least, our thanks go to the editorial board of the *International Journal of Simulation and Process Modelling* for the exceptional effort they did throughout this process.

In closing, we sincerely hope that you will enjoy reading this special issue.