The International Workshop on Digital Design and Manufacturing Technologies - Embracing Industry 4.0 and Beyond

12-13 April 2016, Northumbria University, Newcastle NE1 8SW, UK

Venue: Northern Design Centre, Abbott's Hill, Gateshead, NE8 3DF

Workshop Programme

Day 1: 12 April, 2016

10.00-12.00  Lab Tours: Faculty of Engineering and Department and School of Design

12.00-14.00  Registration
Session 1: Conference Keynotes and Opening, chaired by Prof Shengfeng Qin, Northumbria University

14.00-14.10  Conference Opening, Prof Steven Kyffin, Executive Dean, Faculty of Arts, Design & Social Sciences, Northumbria University

14.10-15.10  Keynote 1—Smart Manufacturing, by Prof. Egon Müller, Chemnitz University of Technology, Germany

15.10-15.25  Break

Session 2: Factory Automation, chaired by Prof Robert Harrison, WMG, Warwick Uni.

15.25-15.45  Marketing study of Crowdsourced Product Design Development, by David Van der Velde, Consult and Design Ltd, Manos Chatzakis, Northumbria University, Terry McStea, RTC

15.45-16.05  Development of the Customer-driven Manufacturing System for Vari-focal Lenses in the Context of Industry 4.0, by Junli Liu & Kai Cheng, Brunel University

16.05-16.25  A collaborative simulation method with spatiotemporal synchronization process control for designing complex mechatronics system, by Yisheng Zou, Southwest Jiaotong University, John Tan and Shengfeng Qin, Northumbria University

16.25-16.45  Optimal Hybrid Wind/PV/Biodiesel Power System for a Household in the UK, by Chunqiong Miao, Ya Gao, Jie Ji and Yaodong Wang, Newcastle University
16.45-17.00 Break

**Session 3**  
System Modelling and Data-Driven Intelligence, chaired by Prof Jihong Yan, HIT

17.00-17.20 Design change propagation analysis method based on complex product systems modeling, by **Haizhu Zhang**, **Rong Li** and **Guofu Ding**, Southwest Jiaotong University

17.20-17.40 Study of Wireless Device Connection Problems and Design Solutions, by Ji-Won Song, Brunel University, Tek-Jin Nam, KAIST, Don Norma, CUSCD, Shengfeng Qin, Northumbria University

17.40-18.00 Knowledge mining and data characterization of multi-source heterogeneous spatial data in Industry 4.0 environment, by Jihong Yan, Yue Meng, Lei Lu and Lin Li, Harbin Institute of Technology

18.00-18.20 Development of the supply chain oriented quality assurance system for aerospace manufacturing SMEs and its implementation perspectives, by Abdullahi Hussein and Kai Cheng, Brunel University

18.20-18.40 Simulation study of a combined trigeneration system with energy storage units and ORC, by Jie Ji, Chunqiong Miao, Yaodong, and Tony Roskilly, Newcastle University

**Session 4:**  
Conference Dinner; chaired by Dr John Tan, NU

19.00-19.10 Guest introducing

19.10—21.00 Conference dinner  
Venue: Great Hall in Sutherland Building, Northumbria University NE1 8ST

**Day 2: 13 April, 2016**

8.00-8.45 Registration

**Session 5**  
Conference Keynote Talk, chaired by Prof Kai Cheng, Brunel University

8.45-9.45 Keynote 2-Smart Factories, by Prof Robert Harrison, WMG, Warwick University, UK

9.45-10.00 Break

**Session 6**  
Smart Product and Design Technology, chaired by Prof Ling Shao, NU

10.00-10.20 Rediscovering long-term value of products through change in perception, by Mersha Aftab and Helen Rusli, Northumbria University

10.20-10.40 Research on method of Design model simplification for complex electromechanical products based on network theory and grey relational analysis, by Xin Han and Rong Li, Southwest Jiaotong University
10.40-11.00 Using general-purpose MBS software to construct high-speed train dynamics simulation platform: case study of LMS virtual.lab motion, Z Tang, X Xie, Southwest Jiaotong University of China; S H Guo, J Chang, G F Ding and J JU Zhang, Bournemouth University of UK

11.00-11.20 An integrated method for interaction of manufacturing process and machine tool simulation, by Wanqun Chen, Dehong Huo and Xiang Yu Teng, Newcastle University and Wenkun Xie, Harbin Institute of Technology

11.20-11.30 Break

Session 7 Smart and Intelligent Manufacturing, chaired by Prof Guofu Ding, SWJTU

11.30-11.50 Digital evaluation of sitting posture comfort in human-vehicle system under Industry 4.0 framework, by Qing Tao, Wenlei Sun, Zhaobo Li and Xiao Huo, Xinjiang University, and Jinsheng Kang, Brunel University

11.50-12.10 Multidisciplinary requirement modeling of complex electromechanical products, by Xiaojie Ma and Wenpei Huang, Southwest Jiaotong University

12.10-12.30 Exploring challenges in developing a smart and effective assistive system for improving the experience of the elderly drivers, by Sebin Jung, General Motors Korea, Hongying Meng, Brunel University, Shengfeng Qin, Northumbria University

12.30-12.50 Enhancement of thermal conductivity of absorbents mixing with nanoparticles, by Qibai Wu, Xiaofen Yu, and Haiyan Zhang Guangdong University of Technology, and Ke Tang, Yiji LU and Yaodong Wang, Newcastle University

12.50-13.30 Sandwich lunch

Session 8 New Manufacturing Business Models and Challenges, chaired by Prof Müller


13.50-14.10 Investigation on simulation based energy-resource efficient manufacturing integrated with in-process virtual management, by Kanet Katchasuwanmanee and Kai Cheng, Brunel University and Richard Bateman, Coventry University

14.10-14.30 Research on design space reduction and optimal design method of complex electromechanical products, by Jie Jiang and Jian Zhang, Southwest Jiaotong University

14.30-14.50 Digital Relief Generation from 3D Models, by Meili Wang, Yu Sun and Dongjian He, Northwest A&F University and Min Jiang, Kun Qian and Jian Chang, Bournemouth University

Session 9 The Special Issue Reviewing and Closing

14.50-15.10 Conference closing, Chaired by Prof Kai Cheng and Prof Shengfeng Qin