Special issue on Digital Enterprise Technologies

Changqing Liu¹ · Yingguang Li¹ · James Gao²

Received: 4 May 2017 / Accepted: 29 May 2017 / Published online: 12 July 2017
© Springer-Verlag London 2017

The guest editors are delighted to present this special issue on Digital Enterprise Technologies, to international researchers and practitioners in the manufacturing sector and related technology and service industries.

The special issue includes carefully selected papers presented at the 9th International Conference on Digital Enterprise Technology (DET2016) which was held on 29–31 March, 2016 in Nanjing, China. Authors were invited to re-write, extend and significantly improve their papers presented at DET2016. The main aim of the conference is to provide an international forum for the exchange of leading edge scientific knowledge and industrial experiences, regarding the development, integration and applications of the various aspects of Digital Enterprise Technologies, in the global manufacturing of the knowledge economy era.

Digital Enterprise Technology is defined by the conference scientific committee as “the collection of systems and methods for the digital modelling, simulation and optimization of the collaborative product development, factory and manufacturing processes planning, along their lifecycle.” The guiding idea of the conference is to find a common

understanding of employing Digital Enterprise Technologies in the factories of the future, moving from automated to flexible, digital, sustainable, smart and intelligent manufacturing.

In total, 187 delegates from 15 countries and regions attended the conference, of which 27 delegates were from multi-national companies. A total of 121 papers were accepted for presentation at the conference. Of which, 22 papers were selected for potential inclusion in the special issue. All selected papers had gone through the standard review process of the *International Journal of Advanced Manufacturing Technology*. Based on the recommendations of international reviewers, 14 papers were finally selected by the guest editors.

The special issue starts with an overview paper written by James Gao and Alain Bernard (in addition to the 14 selected papers), which provides an introduction of the main issues and future research direction in knowledge management in the manufacturing industry with an emphasis on the new product development process. The 14 technical papers can be broadly grouped into the following interrelated and overlapping areas:

Two papers reported research on issues related to *product and design*, i.e., “Assembly sequence planning for open-architecture products” authored by Ma et al. and “Improving uncertainty analysis of embodied energy and embodied carbon in wind turbine design” authored by Ozoemena et al.

In the *manufacturing* area, three papers are presented, i.e., “Manufacturing process information modeling using a metamodeling approach” authored by Yang et al., “Using autonomous intelligence to build a smart shop floor” authored by Tang et al. and “Research on key technologies for immune monitoring of intelligent manufacturing systems” authored by Cai et al.

Research in the area of *product service and maintenance* are reported in the following two papers, i.e., “A lean PSS design and evaluation framework supported by KPIs monitoring and context sensitivity tools” authored by Mourtzis et al.

✉ Yingguang Li
liyingguang@nuaa.edu.cn

Changqing Liu
liuchangqing@nuaa.edu.cn

James Gao
j.gao@greenwich.ac.uk

¹ College of Mechanical and Electrical Engineering, Nanjing University of Aeronautics and Astronautics, NO.29 Yudao Street, Nanjing, China

² Faculty of Engineering and Science, University of Greenwich, Chatham Maritime, Kent, UK

and “A collaborative machine tool maintenance planning system based on content management technologies” authored by Wan et al.

Two papers addressed issues in *five-axis flank milling* of surfaces, i.e., “Research on surface morphology of the ruled surface in five-axis flank milling” authored by Li et al. and “The mechanism of curvature for complex surface during five-axis flank milling” authored by Song et al.

Two papers reported research related to *accurate numerical control machining*, i.e., “Improving forecasting compensatory control to guarantee the remaining wall thickness for pocket milling of a large thin-walled part” authored by Wang et al. and “An error prediction model of NC machining process considering multiple error sources” authored by Hu et al.

Finally, three papers reported research in *cutting tools related to workpiece materials*, i.e., “Effects of tool orientation and surface curvature on surface integrity in ball

end milling of TC17” authored by Yao et al., “Tool shape-performance-application integrated design approach: a development and a numerical validation” authored by Ji et al. and “Hole-making processes and their impact on the microstructure and fatigue response of aircraft alloys” authored by Sun et al.

We would like to express our sincere thanks to all the authors and international peer reviewers for their contribution to the high-quality papers presented in this special issue that will enrich the knowledge and stimulate future research interests in this important field.

Guest Editors:

Dr. Changqing Liu,
Prof Yingguang Li and
Prof James Gao