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## Preface

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With globalisation, manufacturing enterprises today are facing many challenges ranging from product design to manufacturing. In response to increasing customer demand and dynamic competition, companies are under high pressure to shorten time-to-market by providing tailored products to customers for economy of scope, and to reduce time-to-volume via mass production for economy of scale. These requirements are driving technology that needs to speed up product design and development, and to enhance manufacturing capability and capacity. Innovations in computers and information technology in advanced product design and manufacturing have continued to expand and attract attention to address these challenges, showing an explosion of research and development in the areas. This special issue aims to

give a timely and comprehensive presentation of the findings and achievements from such an explosion in the areas.

Fifteen papers have been selected, through rigorous peer reviews, from the International Conference on Product Design and Manufacturing Systems, 2007 (PDMS2007) as well as from the submissions to a general call for papers.

In the area of advanced design, M. Li and co-workers of Singapore describe their work on design reusability assessment for efficient CAD model retrieval; Y. Hou and co-workers of China present their work on partially autonomous conceptual development of multifunctional structures; F. Salah and co-workers of UK show a knowledge-based system for enhancing conceptual design;

and H. Abdalla and co-workers of UK establish an integrated design framework for mass customisation in the consumer electronics industry.

In the area of advanced manufacturing, L. Rabelo and co-workers of USA show the use of neural networks for monitoring supply chain behaviour; D. Biermann and co-workers of Germany describe intelligent process planning methods for the manufacture of moulds; W. Liao of China presents an improved ant colony optimisation method for redundancy allocation problems; Y. Liu and co-workers of China present their work on design and evaluation of a vibration sensor for measurement-while-drilling; C. Li and co-workers of China present their work on scheduling optimisation for supply chain in networked manufacturing; J. Chen and co-workers of China show a new slotting method for

2D digital gear tooth surfaces; and J. Wang and co-workers of China present a two-dimensional study on lubrication mechanism of water-lubricated rubber alloy bearing.

In the area of information technology, J. Sun and co-workers of Singapore describe their work on opinion comparison between internet forums and customer reviews; S.K. Ong and co-workers of Singapore present their work on multi-agent-based Pay-per-Use (PpU) distributed manufacturing; K.B. Lim and co-workers of Singapore demonstrate their work on partial occluded object recognition; and S.L. Cheng and co-workers of China present a study on three-dimensional flow characteristics on the port of an engine.

We wish to thank the authors for their excellent contributions and most important collaboration in the production of this special issue.