# Preface

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**Biographical notes:** Xiaoping Li received his PhD Degree from the University of New South Wales, Australia in 1991, and joined the National University of Singapore in 1992, where is currently a Professor with the Department of Mechanical Engineering and Division of Bioengineering. He is a member of ASME, a senior member of SME and a senior member of NAMRI/SME. He is a Guest Editor or Editorial Board member for 7 international journals and is a regular reviewer for 22 international journals. His current research interests include nanostructured functional materials, magnetic sensors, micro/nano fabrication, neural sensors and signal processing.

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As the demands for mechatronic devices and systems rapidly increase, there has been an explosion of research in these areas, especially for transportation vehicles and underwater measurement. The development of modern mechatronic technology has ignited innovation in electric machines in terms of topologies, driving and applications. Progress in robot technology has extended beyond automation of manufacturing industry and has proven to be applicable to such areas as healthcare, entertainment, security/patrol and home life. This special issue aims to publish new ideas and the most recent developments in mechatronic devices/systems for transportation vehicles as well as underwater vehicles, electrical machines and drive systems for applications to intelligent mechatronics.

For this special issue, from the 2nd International Forum of Systems and Mechatronics, 2007 (IFSM2007), as well as from the submissions in response to the general call for papers, through rigorous peer reviews, 11 papers have been selected, in which David G. Dorrell of University of Glasgow, UK, presents matrix analysis techniques in cage induction machines and energy devices with wide speed range and pulsating power delivery, M.S. Wang of Southern Taiwan University, Taiwan, describes DSP-based PMSM drive design for electric injection moulding machines,

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B.H. Wu and G.P.J. Too of National Cheng Kung University, Taiwan, present Cross Correlation Function Combined with Wavelet Transform (CCFCWT) for acoustic holography scanning measurement, G.P.J. Too and co-workers show an autorange volume control for automobile audio system, P.L. Hsu and A.P. Wang present the integration and realisation of distributed edutainment biped humanoid robot, Y. Shang and co-workers show a dynamic robust compensation control to inherent high-frequency motion disturbance on the electro-hydraulic load simulator, T.I. James Tsay and C.H. Lai of National Cheng Kung University, Taiwan, present the development of a humanoid robot, T.I. James Tsay and M.K. Lee describe binocular tracking with ultrasonic sensors, N. Ning and co-workers of National University of Singapore, Singapore, describe the effect of an external magnetic field on the performance of composite wire structured magnetic inductors, and B.B. Biswal and co-workers of National Institute of Technology, India, present correct assembly sequence for robotic assembly using motion instability and part contact level graphs.

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