SPECIAL ISSUE ON NOVEL MATERIALS AND SENSING TECHNOLOGIES ON ELECTRONIC AND MECHANICAL DEVICES PART 4(1)

PREFACE

In recent years, applications of novel materials and sensing technologies in electronic and mechanical devices have become rapidly developing fields. Manufacturing is the economic lifeline of a country and has been regarded as a labor-intensive industry. Therefore, to cut production costs, devices for Internet of Things (IoT) are widely developed. IoT is composed of the most integrated end devices and facilities, such as intelligent sensors for internal control, industrial systems, mobile terminal systems, floor control systems, and home intelligent facilities. Smart devices and external control information are utilized with the hope to attract companies that manufacture high-value-added aerospace, automotive, IT mold, textile, optoelectronic, watch, medical, defense-related, automation, energy, and semiconductor-related parts and components to drive a country's economy. Therefore, the key to keeping up with the competitive advantage of domestic manufacturing in the future is still to rely on the development of advanced manufacturing and precision machinery-related technologies. The scope of this Special Issue "Novel Materials and Sensing Technologies on Electronic and Mechanical Devices" covers fundamental materials of electronic, mechanical, and electrical engineering, including their synthesis engineering, integration with many elements, designs of electronic or optical devices, evaluation of various performance characteristics, and exploration of their broad applications to industry, environmental control, materials analyses, and so forth. Part 4(1) of this special issue selects 11 excellent papers about three categories of sensors and materials fields:

(1) Physical/Mechanical Sensors: "Field-oriented Controlled Permanent Magnet Synchronous Motor Drive with Dynamic-parameter Speed Controller Based on Generalized Regression Neural Network" presented by Luo *et al*., and "Intraoperative Investigation of Vibration and Acoustic Characteristics of Venous Pulsatile Tinnitus Using Confocal Laser Displacement Sensor, Doppler Ultrasonography, and Piezoelectric Film Sensor: A Pilot Study" presented by Hsieh and Wang.

(2) Related Technologies: "Establishment of Biometric Verification System Based on Design Science Research Methodology and Sensing System for Smart Border Control" presented by Lin and Hung, "Genetic-algorithm-based Local Binary Convolutional Neural Network for Gender Recognition" presented by Lin *et al*., "Surface Roughness Prediction and Parameter Selection for Grinding Process with Computer Numerical Control" presented by Lin *et al*.,

"Multi-objective Optimal Parameter Design of Nanofilters and Heat Sink Fins in Train Traction Motor Drive System" presented by Kuo, "Combustion of Low-heating-value Fuel in Combustor of Gas Turbine with Swirler" presented by Leu *et al*., "Effect of Liquid Injection Intensity on Preferential Flow and Its Characteristics by Soil Sensors" presented by Zhang *et al*., "Automatic Guided Vehicle Global Path Planning Considering Multi-objective Optimization and Speed Control" presented by Song, and "Research on Translation Style in Machine Learning Based on Linguistic Quantitative Characteristics Perception" presented by Qiu *et al*.

(3) Sensor Applications: "Use of Sensor Technologies in Online Courses in Post-COVID-19 Era" presented by Wu *et al*.

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Teen-Hang Meen
Distinguished Professor, Department of Electronic Engineering
National Formosa University, Taiwan

Wenbing Zhao
Professor, Department of Electrical Engineering and Computer Science
Cleveland State University, USA

Hsien-Wei Tseng
Professor, College of Artificial Intelligence
Yango University, China