# Table of Contents

## Product Design

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature-Based Approach for a Process Supply System Design</td>
<td>1</td>
</tr>
<tr>
<td>Y.S. Ma and Q. Hadi</td>
<td></td>
</tr>
<tr>
<td>Customer Co-design of Computer Mouse for Mass Customization without</td>
<td>8</td>
</tr>
<tr>
<td>Causing Mass Confusion</td>
<td></td>
</tr>
<tr>
<td>Wenchao Zhou, Dazhong Wu, Xiaoyu Ding, and David W. Rosen</td>
<td></td>
</tr>
<tr>
<td>Assembly Time Modeling through Connective Complexity Metrics</td>
<td>16</td>
</tr>
<tr>
<td>James L. Mathieson, Bradley A. Wallace, and Joshua D. Summers</td>
<td></td>
</tr>
<tr>
<td>Green Product Development by Using Life Cycle Assessment (LCA), Theory of Inventive of Problems Solving (TRIZ)</td>
<td>24</td>
</tr>
<tr>
<td>Clifford Chi-shing Chan, Kai-ming Yu, and Kai-leung Yung</td>
<td></td>
</tr>
<tr>
<td>Implementing and Planning ICT Strategy for Sustainable Development in Electrical/Electronics Goods Manufacture</td>
<td>30</td>
</tr>
<tr>
<td>Kevin C. Tseng</td>
<td></td>
</tr>
</tbody>
</table>

## Manufacturing Processes

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantages of Fused Deposition Modeling for Making Electrically</td>
<td>37</td>
</tr>
<tr>
<td>Conductive Plastic Patterns</td>
<td></td>
</tr>
<tr>
<td>Mario D. Monzon, N. Diaz, A.N. Benitez, M.D. Marrero, and P.M. Hernandez</td>
<td></td>
</tr>
<tr>
<td>Environmentally-Friendly Nano-fluid Minimum Quantity Lubrication (MQL)</td>
<td>44</td>
</tr>
<tr>
<td>Meso-scale Grinding Process Using Nano-diamond Particles</td>
<td></td>
</tr>
<tr>
<td>Pil-Ho Lee, Taek Soo Nam, Chengjun Li, and Sang Won Lee</td>
<td></td>
</tr>
</tbody>
</table>
Selective Laser Melting of Magnesium for Future Applications in Medicine .......................................................... 50
M.M. Savalani, C.C. Ng, and H.C. Man

Extrusion Pressure Generated in High Alumina Content Paste Extrusion ............................................................ 55
X.P. Chi, S. Yang, and J.R.G. Evans

Design and Rapid Fabrication of Non-assembly Mechanisms ............................................................................ 61
Yongqiang Yang, Di Wang, Xubin Su, and Yonghua Chen

Fabrication of Electronics Devices with Multi-material Drop-on-Demand Dispensing System ............................ 64
J. Sun, J.H. Ng, J.Y.H. Fuh, Y.S. Wong, E.S. Thian, R Yang, and K.K. Tan

Computer-Aided Design

3D Fillet Solid Model Reverse Engineering from 2D Orthographic Projections .................................................. 71
Simon Siu-pun Shum, Kai-ming Yu, and Kin-man Au

Patrick S. Chang and David W. Rosen

Constraints Based Deformation .......................................................................................................................... 87
Wing-Shing Tang and K.C. Hui

Topology Optimization of a Prosthetic Knee Joint Component ........................................................................ 94
Jinan Lu and Yonghua Chen

Modeling Functionally Graded Porous Structures with Stochastic Voronoi Diagram and B-Spline Representations .................................................................................................................. 99
X.Y. Kou and S.T. Tan

Computer-Aided Manufacturing

Study on Fruit Quality Inspection Based on Its Surface Color in Produce Logistics .............................................. 107
Yizhong Wang, Yanhua Cui, George Q. Huang, Ping Zhang, and Shaohui Chen

Multi-piece Mold Design Based on Linear Mixed-Integer Program toward Guaranteed Optimality ................... 112
Stephen Stoyan and Yong Chen

Manufacturability Analysis of Infeasible Features in Polygonal Models for Web-Based Rapid Prototyping .......... 120
Yong Chen and Xiaoshu Xu

Tool Orientation Control Using Quaternion Interpolation in Multi-axis Milling of Blade .................................... 128
Ming Luo, Dinghua Zhang, Baohai Wu, and Feiyan Han
Chip Thickness Analysis Based on Tooth Trajectory for Different End Milling Processes
Xue Yan, Hua Tao, Dinghua Zhang, and Baohai Wu

Spiral Tool Path Planning for Five-Axis Machining of Multi-patch Island Based on Point Model
Xu Zhou, Dinghua Zhang, Baohai Wu, Jianhua Yang, and Ming Luo

GPU-based Optimization of Tool Path Planning in 5-Axis Flank Milling
Hsin-Ta Hsieh and Chih-Hsing Chu

Data Processing and Intelligent Algorithms
The Research of Optimal Algorithm for Task Scheduling Underground Wireless Network Based on Distributed Computing
Dian-xu Ruan, Xiao-guang Zhang, Hui Li, and Yin Liu

A Discrete Electromagnetism-Like Mechanism Algorithm for Solving Distributed Permutation Flowshop Scheduling Problem
Hongcheng Liu and Liang Gao

Research on Fault Diagnosis Based on Wavelet Packet Multi-class Classification SVM
Xiaogang Xu, Songling Wang, Fei Li, Zhengren Wu, and Wei Sun

Research on the Construction of Capacity Courses Group Based on BSC
Hui-Long Yang

A Genetic Search Algorithm for a Vehicle Routing Problem with Time Windows
Y.F. Wang, Y.F. Zhang, and J.Y.H. Fuh

Supply Chain Management and Production System
Workshop for Identifying Assembly Time Savings: An OEM Empirical Study
Essam Z. Namouz, Joshua D. Summers, Gregory M. Mocko, and Andreas Obieglo

Tracking and Visualizing RFID-driven Material Flows for Multistage Machining Processes
Pingyu Jiang, Yingbin Fu, and Mei Zheng

Multi-agent System for Balancing Mixed-Model Assembly Lines with Bi-objective
Li-Man Liao, Ching-Jen Huang, and Ci-Syuan Lin

Multi-agent-Based Negotiation Approach for Scheduling Jobs on Parallel Machines with Ready Times and Machine Preference
Ching-Jen Huang, Li-Man Liao, and Pao-An Lin
### Automatic Control

**Analysis of Weight for Thrust Fluctuations of Linear Motor System Based on FAHP** .......................................................... 217  
*Wu Ai, Guangya Yan, Bing Chen, Yi Xiao, and Qiang Li*

**Backstepping Control of Manipulators Handling a Flexible Payload Based on Distributed Parameter** ........................................... 224  
*Zhiguo Tang and Yuanchun Li*

**The Design and Implementation of Quadruped Robot Gait Simulation System** ........................................................................... 232  
*Hongjun Song, Xuewen Rong, Yibin Li, and Jiuhong Ruan*

**A Comparison Study of Three Degree-of-Freedom Micro-motion Parallel Kinematic Machines with/without Actuation Redundancy** ........................................................................ 239  
*Dan Zhang, Qi Shi, and Jian Li*

**Model Predictive Control for Networked Control Systems with Double-Sided Packet Loss** .......................................................... 246  
*Zhijun Li, Dehui Sun, Yuntao Shi, and Mingyue Zhao*

**Design and Implementation of a 6-DOF Robot Control System Based on CAN Fieldbus** .............................................................. 252  
*Kun Wang, Tao Mei, Min-zhou Luo, Jiang-hai Zhao, and Xiao-dong Ye*

**Analysis of Dynamic Contact Forces for Forging Manipulator Grippers** .............................................................................. 257  
*Qunming Li, Qinghua Qin, and Hua Deng*

### Other Topics

**Ontology Based Knowledge Modeling and Reuse Approach of Supporting Process Planning in Layer-Based Additive Manufacturing** ........................................................................ 261  
*Xijuan Liu and David W. Rosen*

**Selection of Build Orientation in FDM with Allowed Maximum Tensile Strain** .............................................................. 267  
*Yizhong Wang and Yonghua Chen*

**Interactive Forces Analysis and Haptic Modeling for Virtual Prototyping and Product Development** ............................................. 271  
*Yuan-Shin Lee, Shiyong Lin, and Roger Narayan*