

Innovation for Applied Science and Technology

Selected, peer reviewed papers from the Second International Conference on Engineering and Technology Innovation 2012 (ICETI 2012)

Applied Mechanics and Materials Volumes 284-287

**Kaohsiung, Taiwan
2 – 6 November 2012**

Volume 1 of 5

Editors:

Wen-Hsiang Hsieh

**ISBN: 978-1-62748-055-0
ISSN: 1660-9336**

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2012) by Trans Tech Publications Ltd.
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact Trans Tech Publications Ltd.
at the address below.

Trans Tech Publications Ltd.
Laubisrutisr 24
CH-8712 Stafa-Zuerich
Switzerland

Fax: +41 (44) 922 10 33 Fax: +1 (603) 632-5611
e-mail: sales@ttp.net

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

Preface and Committees

Chapter 1: Materials Engineering and Processing Technologies of Materials

Effect of Bi₂O₃ Addition on the Microstructure and Electrical Properties of Lead-Free (Na_{0.5}K_{0.5})NbO₃-Ba(Sn_{0.02}Ti_{0.98})O₃ Ceramics C.H. Wang	3
A Strain-Rate Gradient Theory of Plasticity and its Comparison with Strain Gradient Theories S. Alexandrov, E. Lyamina and Y.R. Jeng	8
A Study on the Fabrication of Metallic Bipolar Plate for Subminiature Fuel Cell Using Powder Injection Molding Process G.H. Kim, J.W. Lee, Y.M. Heo and M.W. Cho	13
A Study on the Gelation Properties and Rheological Behavior of Gellan Gum Y.C. Meng, L.B. Hong and J.Q. Jin	20
An Adaptive-Network-Based Fuzzy Inference System for Predicting Springback of U-Bending B.T. Lin, K.M. Huang and C.C. Kuo	25
Anti-Corrosion Properties of the Reactive Anode and Cathode Inhibitor by Electrochemical Treatment in Aqueous H.S. Lee and H.S. Ryu	31
Axial Compression for Direct Capture of Carbon Dioxide (CO₂) H.X.M. Chan, E.H. Yap and J.H. Ho	35
Calcined Powder of the Sol-Gel Synthesis Hydroxyapatite C.K. Chen	41
Cell Cycle Analysis of Rat Schwann Cells on Chitosan Scaffolds by Flow Cytometry C.Y. Lin, L.T. Li and W.T. Su	46
CFD Simulation of the Fused Silica Synthesis Furnace T. Feng and P.Y. Wang	51
Characterization of Conductive Thin Films Deposited by Ink Jet Printing T.C. Li, R.C. Chang and Y.C. Li	57
Comparative Study on Partial Discharge Characteristic in Polymer-Nanocomposite as Electrical Insulating Material W.A. Izzati, M. Shafanizam, Y.Z. Arief, M.Z.H. Makmud, Z. Adzis and N.A. Muhamad	62
Determination of the Value of E in Metallic Materials G. di Francesco and S. Marini	67
Dynamic Adsorption and Desorption of Toluene on Carbon Nanotubes Grafted Activated Carbon Fibers Y.C. Chiang and W.H. Lin	72
Effect of Acid Etching Durations on Surface Roughness and Residual Stresses of Lightweight Glass Ceramic C.Y. Chan, Y.C. Chen, C.R. Yang and T.M. Huang	77
Effect of K₂CO₃ Addition on the Structure and Electrical Properties of Lead-Free (Na_{0.5}K_{0.5})NbO₃-(Na_{0.5}Bi_{0.5})TiO₃ Ceramics C.H. Wang	83
Effect of PE-g-MAH as Compatibilizer on Properties of LDPE/NR/WHF Composites S.J. Tan, A.G. Supri and P.L. Teh	87
Effect of Strain Rates on the Mechanical Behavior of Cu Thin Films of Various Thicknesses K.J. Chung, C.F. Lin and W.C. Chiang	94
Effects of Carbon Co-Implantation on Transient Enhanced Diffusion and Performances of the Phosphorus Doped Ultra-Shallow Junction Nano NMOSFET H.Y. Chiu, Y.K. Fang and F.R. Juang	98

Effects of Cooling Rate on the Microstructure and Mechanical Properties of Ti-6Al-4V Alloy S.C. Jeng and H.S. Chiou	103
Effects of Substrate Temperature on the Microstructure and Properties of Al-Doped ZnO Thin Films by DC Magnetron Sputtering from AZOY® Target P.C. Yao, S.T. Hang and M.J. Wu	108
Engineered Properties of Sustainable Cement-Based Composites Containing Recycled Rock Wool and Supplementary Cementitious Materials W.T. Lin, T.Y. Han, Y.C. Wu, A. Cheng, R. Huang and T.L. Weng	113
Fabrication and Characterization of Cu-Plated Fine Pitch Patterns on Flexible Polyimide Y.C. Wu, Y.J. Huang, M.K. Chen, Y.L. Lin and L.S. Jang	118
Fatigue Strength under Optimal Conditions of Spot Weldment Using GA and FEM J.H. Song, S.M. Yang, H.S. Yu and H.Y. Kang	123
FEM Simulation on Rotating Piercing Process with Coulomb Friction H.Y. Teng, G.Y. Tzou and Y.M. Hwang	127
Fiber Cross-Section Shape Effect on Rate-Dependent Behavior of Polymer Matrix Composites with Fbgs Sensors Z. Zhai, Z.J. He, X.F. Chen, J.J. Ye and X.J. Zhu	132
Functionalized Mn²⁺ Doped Zinc Sulfide Quantum Dots as a Metal Ion Sensor for Industrial Wastes G.F. Chen, H.P. Tsai, P.S. Lai and M.Y. Liao	138
Impact Characteristics of CFRP Hat-Shaped Members According to Changes in Outer Layer under the Hygrothermal Environment Y.J. Yang, I.G. Yeo, W.C. Hwang, H. Kook and I.Y. Yang	143
Intact Ultrathin Ni Films Fabricated by Electroplating with Supercritical CO₂ Emulsion T.F.M. Chang, T. Nagoshi, C. Ishiyama, T. Sato and M. Sone	147
Isothermal Section of the Sn-Fe-Zn Ternary System at 270°C Y.W. Yen, Y.P. Hsieh, W.C. Chen and C.C. Jao	152
Leakage and Fatigue Characteristics of Polyvinylidene Fluoride Film W.Y. Chang, C.H. Hsu and C.P. Tsai	158
Micro-Compression Test of Nanocrystalline Nickel Deposited by Supercritical Carbon Dioxide Emulsion T. Nagoshi, T.F.M. Chang, T. Sato and M. Sone	163
Nanocrystalline Diamond Particles Prepared by High-Energy Ball Milling Method C.R. Lin, D.H. Wei, M.K.B. Dao, R.J. Chung and M.H. Chang	168
Nonlinear Dynamic Characteristics of Giant Magnetostrictive Nanofilm-SMA Composite Beam in Axial Stochastic Excitation Z.W. Zhu, W. Guo and J. Xu	173
Numerical Analysis on Failure Behavior of Composite Sandwich Plate Y. Hsu	178
Oxidation Resistance and Corrosion Resistance of AlTiCrON Multilayered Coatings on AISI M2 Tool Steel W.Y. Ho, C.H. Hsu, Z.S. Yang, L.W. Shen and W.Y. Ho	183
Partial Discharge Characteristics of Natural Rubber Blends with Inorganic Nanofiller as Electrical Insulating Material Y.Z. Arief, M.I. Ismail, M.Z.H. Makmud, A. Aulia, Z. Adzis and N.A. Muhamad	188
Properties of RF Magnetron Sputtered Sr_{0.4}Ba_{0.6}Nb_{1.85}Ta_{0.15}O₆ Thin Films C.F. Yang and W.C. Tzou	193
Spot Weld Property Testing and Simulation Modeling with Failure Criteria H.Y. Hwang and N. Quoc Nghiem	198
Static and Fatigue Strengths of Carbon Nanotube/Epoxy Composites under Hygrothermal Environments Y.M. Jen and C.Y. Huang	204
Study on Multi-Stage Cold Forging of Stainless Automotive Battery Fastener M.C. Sun, G.Y. Tzou and L.A. Zheng	211
Susceptibility to Stress Corrosion Cracking of Fe-35Mn Alloy under a Pseudo-Physiological Condition H. Hermawan and D. Mantovani	216

Taguchi Method and Genetic Algorithm Neural Networks Analysis of Forging Process of Bicycle Chain Wheel D.C. Chen and C.S. You	220
Taper Angle of Silicon Nitride Thin Film Control by Laser Direct Pattern for Transistors Fabrication C.N. Chen, J.J. Huang, G.M. Wu and H.W. Chien	225
Texture Evaluation of Sol-Gel Derived Mesoporous Bioactive Glass Y.J. Chou, C.J. Shih and S.J. Shih	230
The Influence of Ti and Al Additions on the Mechanical Response of Cobalt Superalloy T.H. Chen	235
Thermal Annealing Effects Study on Electrical and Structural Properties for Ni-Au/n-GaN Schottky Contacts C.Y. Wang, H.P. Shiao, P.W. Shieh and H.H. Chang	241
Thermal Stabilities and Mechanical Properties of Two Tetra-Functional Epoxy Resins M.M. Yu, Y.Y. Cui, X. Ma, A.J. Li, R.C. Bai, J.L. Sun, M.S. Ren and H.F. Hu	245
Titanium-Doped Indium-Tin-Oxide Anti-Reflection Coating for Poly-Si Solar Cells J.Y. Lin, S.Y. Lien, H.Z. Liao, C.C. Wang, A. Nautiyal and Y.H. Lin	250
Fatigue Quality Index by Infrared Stress Measurement in Spot Weldment K.J. Kim, S.M. Yang, H.S. Yu and H.Y. Kang	255
A Study of Fabrication Nanopowders of Cu₂ZnSnS₄ for Solar Cells Absorbers K.L. Wong, W.L. Chen and S.H. Wang	261
Effect of PAO-Based γ-Fe₂O₃ and Surfactant Concentration on Viscosity Characteristic S.A.N. Leong, P.M. Samin, A. Idris, M.A. Azizul and E. Misran	265
Adsorption Behaviors of Nucleic Acid by Cationic Magnetic Nanoparticles C.H. Liu and Y.F. Hsien	271
Annealing Effects on Hydrophobic AlN Coatings Y.S. Yang, T.P. Cho and J.H. Lin	276
Degradation Mechanism of III-V Triple Junction Solar Cells Analyzed Using Step Stress Tests H.F. Hong, J. Wei, M.H. Chiang, Z.H. Shih, W.Y. Uen, Y.R. Hsu, C.B. Chung and Y.M. Lee	281
Detecting Soil Water Content of Red Soil and Younger Alluvial Soil Using a Spectrometer J.L. Chiang and S.H. Jien	287
Dry Machining of T6061 Aluminium Alloy Using Titanium Nitride (TiN) and Titanium Carbonitride (TiCN) Coated Tools T.F. Ariff, M.F. Paimin and A. Hassan	291
Effect of Textured Surface on Sliding Friction Investigated Using Molecular Dynamic Simulation M.Y. Chen, Z.H. Hong, T.H. Fang, S.H. Kang and L.M. Kuo	296
Effects of an Extended Amphipathic Helix on Intermolecular Interactions and Self-Assembly of Peptides via Pulsed Field Gradient Nuclear Magnetic Resonance C.S. Lee and W.C. Tung	300
Effects of SiO₂ and TiO₂ Nanofillers on Conductivity Level of LLDPE-NR Nanocomposite HV Insulator M.J.N. Akmal, M.P.M. Afendi, M. Nor Asiah, Z.R. Addawiyah and K. Nur Faizal	305
Flame Synthesis of Carbon Nanotubes and Nano-Onions in a Rotating Opposed-Jets Flow S.S. Hou and W.C. Huang	310
Investigation of Hybridization Efficiency of a Sequence-Orientated Coaxial DNA Probe Microarrayed on Biochips Using Atomic Force Microscope J.C. Wu, D.K. Yang, Y.S. Lin and J.Y. Chen	315
The Humidity Property of the AR Texture with SiO₂ Nanospheres by Spin Coating Method C.C. Hsu, W.L. Lan and W.E. Fu	320
The Effect of Annealing Temperature on the Opt-Electric Properties of Ti:GZO Transparent Conducting Oxides Thin Film T.H. Chen and T.Y. Liao	324
The Curing Cycle Grouping of Aerospace Composite Shop H.M. Chang, C.K. Huang and C.C. Torng	329
Submicron Patterns on Sapphire Substrate Produced by Dual Layer Photoresist Complimentary Lithography C.M. Chang, M.H. Shiao, D.Y. Chiang, C.T. Yang, M.J. Huang, C.T. Cheng and W.J. Hsueh	334

Study on CO₂ Adsorption on LiOH-Modified Al₂O₃ Y.M. Cho, Y.M. Yang, D.S. Park, S.B. Kwon, W.S. Jung and J.Y. Lee	342
Study of Zinc Oxide Films on SiO₂/Si Substrate by Sol-Gel Spin Coating Method for pH Measurement K.L. Foo, M. Kashif and U. Hashim	347
Study of Biodegradable Polyurethane Foam as Carriers for Low C/N Ratio Wastewater C. Tan, F. Ma, S. Qiu, H.Y. Zeng and Y. Zhou	352
Stress Analysis of Carbon Nanotubes Reinforced Nanocomposites S.C. Her and S.J. Liu	357
Stochastic Nonlinear Vibration of Fluid-Loaded Double-Walled Carbon Nanotubes T.P. Chang	362
Size Effect of Silver Nanoparticle Melted into ZnO Nanorods for Photocatalytic Activity J.J. Huang, C.H. Chao, C.N. Chen, C.F. Hsu and M.W. Tsai	367
Robust Design Analysis on Fatigue Life of Lead-Free Sn0.5Ag Solder in a Multichip Module Package C. Kung	375
Research on the Synthesis Process of Ethylmaltol by Electrochemistry J.J. Sun, M. Hao, L. Wang and L.H. Cui	380
Research on the Extraction Process of Water-Soluble Asparagus Powder and Removal of Free Radical Y.S. Peng, S.T. Song, S.Y. Wang, X.F. Zheng and Q. Lian	385
Optimization Technology and Developing of Vascular Stents C.S. Chen, S.Y. Lin and N.K. Chou	390
Optimal Buffer pH Value on the Detection of HSA by Using a Protein Chip Prepared by DNA-Directed Immobilization W.P. Hu, L.Y. Huang and W.Y. Chen	398
Neural Network MIMO Model for Production of Isopropyl Myristate in a Semibatch Reactive Distillation Column N.A. Ali Bashah, M.R. Othman and N. Aziz	403
Neural - Wiener Model for Multivariable Methyl Tertiary Butyl Ether (MTBE) Reactive Distillation S. Sudiby, M.N. Murat and N. Aziz	409
Nanoscale Removal Processing by a Twin-Cylinder Tool P.S. Pa	414
Nanoparticles Composed by Oligochitosan and Polyethylenimine for Gene Delivery C.H. Liu and M.S. Cheng	418
Kinetic Model with Effect of Water Content for Enzyme-Catalyzed Citronellyl Laurate Esterification Process S.A. Zulkeflee, S. Abd Sata and N. Aziz	423
Light Reflectivity of Multiwall Carbon Nanotubes with Pattern-Less or Pattern-Grown Nanotubes Y.H. Chou, Y.G. Jan, L.Y. Yen, C.C. Huang, C.P. Juan and Y.H. Lee	429

Chapter 2: Machine Parts and Mechanisms. Design and Manufacturing

An Analysis Method for Deepwater TTR Coupled Vibration of Parameter Vibration and Vortex-Induced Vibration X.M. Wu and W.P. Huang	437
Aeroelastic Behavior of Morphing Wing in Flutter Regions Y.Y. Jung and J.H. Kim	442
An Electromagnetic Sensing Method (ESM) to Detect the Short-Circuit in PCB C.H. Chen, J.J. Chang, T.S. Liao and K.C. Huang	446
Contour Positioning System - New Traveling Distance Estimation Method for Electric Vehicle K.W. Chew, Y.H. Gan and C.K. Leong	451
Design and Simulation of Laser Module Packaging of TO-Based Butterfly-Type Structures M.T. Sheen	456

Dynamic Analysis of a Geared Rotor-Bearing System with Time-Varying Gear Mesh Stiffness and Pressure Angle Y.C. Chen, C.H. Kang and S.T. Choi	461
Experimental Study of Dual Heater Slider Touchdown Detectability D.P. Zhao, X.F. Wei, Y. Wang, B. Liu, S.X. Chen and Z.Q. Xu	468
Frequency Dependence on Image Reconstruction for a Buried Conducting Cylinder W. Chien, H.W. Tseng, Y.W. Lee, L.Y. Yen and C.C. Chiu	473
Innovative Derivation for Physics Relations H.C. Shih and H.J. Lin	478
Maximization of Solar Gains of an Air Collector by Simulations O. Sikula, V. Merka, J. Hirs and J. Plášek	483
Measurement of Radius of Curvature by Coordinate Measurement Machine S.T. Chang, W.C. Lin, T.M. Huang, M.Y. Hsu and P.H. Huang	488
Measuring Path without Tool Center Point Function for B-Type Five-Axis Machine Tool C.H. She, W.Y. Jywe and J.J. Huang	493
Modulations of Amplitude in Mobile Acoustical Heritage C.K. Lim, A.Z. Talib and K.L. Tan	498
Non-Iterative Mode Shape Expansion for Beam Structures Based on Coordinate Decomposition F.S. Liu, W.W. Chen, C.F. Peng and W. Li	503
Numerical Comparison of Methods for Solving Boundary Layer Problems in Hydrodynamics S.H. Chang	508
On Studying Fluidic Motions in an Oscillating Heat Pipe H.M. Chen, C.M. Chiang, K.H. Chien and C.C. Wang	513
Optimization of Aerodynamic Performance of Wind Turbine Blades H.W. Chi, P.S. Wu, K.R. Chen, Y.H. Jhuo and H.Y. Wu	518
Rapid Discrimination of Bacteria and Bacteriophages by Raman Spectroscopy C.C. Lin, C.H. Hung, C.W. Chang and L.R. Huang	523
Seawater Flow Characteristics and Drag Force Variation with Inflow Angle in Tidal Current Turbine System J.W. Kim and S.H. Lee	528
Taguchi Optimization of Machining Quality in Step Drilling of Composites Based on Membership Function C.C. Tsao and Y.Q. Lin	533
The Application on Gear Fault Detection by Using Fast Time-Frequency Order Spectrum Y. Kang and C.C. Wang	538
The Fluorescence Image of Portable System Enhanced by Asynchronous Trigger UV-LED Excitation W.H. Wu, K.C. Huang, Y.J. Chen, H.C. Chang and C.H. Chang	543
The Membrane Thickness Prediction of Solder Paste Process by Phase-Shifting Projection Y.F. Chung, K.L. Tsai, T.L. Chen, Y.C. Hsu and Y.H. Yu	550
The Numerical Simulation of Two-Degrees-of-Freedom Vortex-Induced Vibrations of Circular Cylinder with High Mass-Ratio J.L. Fan and W.P. Huang	557
The Study of Dynamic Simulation on Five Axis CNC Machine Y.M. Lee, K.S. Hsu and S.B. Chang	562
Theoretical Study on Premixed Flames of Nano Aluminum Particles and Water Mixture J.S. Shin and H.G. Sung	567
Ultrasonic Tomography System: Optimizing the Frequency in a Metal Pipe Conveyor J. Abbaszadeh, H.A. Rahim, R.A. Rahim and S. Sarafi	572
A Finite Element Approach to Dynamic Stresses of Helical Gear Pairs Considering Tip Relief and Crowning Modifications K.J. Huang and C.Y. Su	577
A Sensing Device on Liquid Density Y.C. Chung, T.Y. Yang, C.T. Chi, J.Y. Lin, W.C. Cheng and J.Y. Jhang	582
Actuation of Adaptive Rearview System for Motorcycles Y.J. Shiao, Q.A. Nguyen and C.F. Hou	587

Advances in Safety Assessment Method for Thin-Walled Shell's Structure Containing Defects Y. Dan and Y. Han	592
Analysis of a 3-DOF Rotationally Symmetric Hinge H.Y. Kim, J.J. Kim, D.H. Ahn, D. Gweon, C.G. Park and D.P. Hong	597
Analysis of NO Formation in Counterflow Premixed Hydrogen-Air Flame T.F. Xie and P.Y. Wang	601
Light Weight Design for a Concept Sports Car Using Composite Material H.Y. Hwang and C.C. Yang	608
Application TRIZ Principles for Design and Manufacturing Coconut Cutting Machine H.M. Phu and S.C. Huang	613
Benefits on Implementation of Reduced Vertical Separation Minimum (RVSM) in Uzbekistan D. Tukhtaev and D.H. Kim	617
Complex Freeform Surface Measurement Based on Stereo Vision and Digital Phase-Shifting Techniques J.Y. Lin, K.Y. Jiang, M. Chang and Y.Y. Wang	623
Conceptual Design of a Novel Three-Speed Geared Motor Y.C. Wu and C.H. Cheng	629
Conceptual Design of Integrated Brushless Permanent-Magnet Motors and Planetary Gear Trains Y.C. Wu	634
Cone Frustum Part Simulation Performance of Turn-Mill Five-Axis Machine Tool S.L. Chen, H.J. Chang, J.N. Lee and S.T. Chen	638
Constructal View of Design and Evolution of Flow Configuration in Nature and Engineering Z.J. Li and S.J. Dong	645
Construction of an Elementary Model for the Dynamic Analysis of a Pressurized Water Reactor C.W. Tsai, C.K. Shih and J.R. Wang	652
Cooling the Hydro-Powered Synergistic Nozzle Light by Water J.H. Liao and D. Shaw	657
Design and Analysis of Acoustic Horns for Ultrasonic Machining K.M. Shu, W.H. Hsieh and H.S. Yen	662
Design and Analysis of Tubular Linear Machines with Dual Halbach Arrays L. Yan, L. Zhang, N. Yao, Z.X. Jiao, I.M. Chen and C.Y. Chen	667
Design and Characterization of Precise Laser-Based Autofocusing Microscope with Reduced Geometrical Fluctuations C.S. Liu, Y.C. Lin and P.H. Hu	672
Design and Performance Analysis of Dual Vibrating Motors Self Synchronous Shaker with Balanced Elliptical Motion W.B. Zhu, H.S. Wang and L. Dong	677
Design of Dual Layer Liner with Deformable Semi-Spherical Convex for Bicycle Helmet T.L. Teng, C.C. Liang and V.H. Nguyen	681
Design of the Hybrid-Propeller Shaft Using Composite Materials H.S. Kim, D.P. Hong and H.Y. Kang	687
Design Techniques for Reducing Cogging Torque in SPM Motors Using Shifted Slot Opening S.P. Cheng, C.C. Hwang and C.M. Chang	692
Detailed Measurements of End-Wall Heat Transfer Coefficients of Square Pin-Fin Heat Sink for LED Lamp at Forced Convective State T.M. Jeng and S.C. Tzeng	697
Determination of the Optimal Geometrical Features of a Microdrill F.J. Shiou and K.H. Hung	702
Development of a Nanoscale Micro-Machining Machine Y.H. Fan, C.E. Chen, W.W. Fan and H.W. Liao	707
Development of Thermoelectric Conversion System for Waste Heat Recovery of Automobile Engine Exhaust Gas T.M. Jeng and S.C. Tzeng	713

Dynamic Analysis of the Proton Exchange Membrane Fuel Cell J.G. Tseng, D.R. Hsiao and B.W. Huang	718
Dynamic Characteristics of New Tooth Profiles Gear Generated by a Novel Rack-Cutter Y.H. Tsai, S.J. Hwang and Y.L. Hwang	723
Effects of Number of Circumferential Casing Grooves on Stall Flow Characteristics of a Transonic Axial Compressor J.H. Kim, K.H. Cha and K.Y. Kim	727
Effects of Thermo-Physically Initial Properties on Inverse Heat Conduction Problem S.D. Hong, M.G. Cho, C.S. Kim, C.H. Bai, S.Y. Hong and J.S. Shim	733
Evaluation of Wall Heat Transfer in Blade Trailing-Edge Cooling Passage Y.F. Yao, M. Effendy and J. Yao	738
Experimental Investigation of Airflow Distribution for a Novel Combustor Mode Q. Li, M.M. Zhao and F. Xing	743
Experimental Testing and Finite Element Modeling of Bump Wafer Probing H.Y. Chang, K.H. Chang and Y.S. Lai	748
Extracting Single Source Geometric Error Value from a Double Ballbar Measurement Error Map A.S. Saragih and T.J. Ko	754
Free Vibration of Fluid-Loaded Transversely Isotropic Magneto-Electro-Elastic Plates T.P. Chang	758
Friction Analysis on Vane of an Existing and of a Novel Multi Vane Rotary Compressor A.R. Sarip and M.N. Musa	763
Heat Transfer Enhancement of the Liquid-Cooled LED Illumination Module R.Y. Jou	768
Heat Transfer Enhancement of Vertical Heat Sinks with a Piezofan J.C. Shyu and J.Z. Syu	773
Impact and Ricocheting of a Cannonball Colliding onto Sea by Nose-Cone Shape W.C. Choi, S.M. Chung, H.S. Bang, H.S. Lee and Y.S. Cho	778
Improved Energy Performance of Air-Cooled Liquid Chillers with Innovative Condensing-Coil Configurations W.C. Wu, T.S. Lee and C.H. Chang	785
In Situ Spacing Fluctuation Monitoring of Hard Disk Drive with Thermal Asperity Sensors D.P. Zhao, X.F. Wei, B. Liu, Y. Wang, S.X. Chen and L.H. Lan	790
Investigation of the Non-Equilibrium Flow Phenomena in the Boundary Layer of the Scramjet Engine F.Q. Fan and P.Y. Wang	795
Mathematical Modeling and Analysis of Vibration Characteristics of Smart-Phone S.M. Yoon, J.H. Kim and J.H. Kim	800
Mathematical Modeling of Ball-End Cutter J.F. Hsieh and F.S. Wang	806
Mechanical Efficiency Analysis of a 16-Speed Bicycle Transmission Hub Y.C. Wu and P.W. Ren	810
A Study of Micro Injection for Unibody Array LED Lampshade with Multi-Cavities J.C. Lin, K.S. Lee, C.H. Yeh, C.J. Tung, C.C. Ku and K.W. Hsu	815
A Study of Heat Transfer Characteristics of LED Heat Sink and Graphite Heat Sink Process Technology Development S.C. Yang, T.F. Mao, T.M. Jeng, S.C. Tzeng, T.Y. Shie, C.L. Chen and P.T. Chen	819
An Appropriate Design in Dimensions of Submount with Extra-Low Thermal Resistance for High Power LED F.S. Hwu, H.C. Cheng, Y.H. Hu and G.J. Sheu	824
MHD Couette Flow in Cylindrical Porous Annulus with Perfectly Conducting Walls S.W. Guo and J.C. Leong	829
Modeling and Simulation Study of a Series Hydraulic Hybrid Vehicle C.K. Chen, T.V. Vu, C.W. Hung and C.J. Lin	834
Multi-Objective Optimal Mechanical Power for Turbine of River Current Power Generation Using Fuzzy Dominant Directed-Graph Method J.L. Kuo and K.L. Chao	839

Natural Convection Heat Transfer of Annular Metal Porous Medium Heat Sink of LED S.C. Tzeng, T.M. Jeng and Z.T. Yeh	844
Numerical Investigation of a Crossflow Jet in a Rectangular Microchannel K.C. Wong	849
Numerical Model of Journal Bearing Lubrication Considering a Bending Stiffness Effect J.W. Choi, S.S. Kim, S.S. Rhim and J.H. Choi	854
Numerical Study of the Influence of Refractory Thickening on the Reacting Flow and DeNO_x Effect in a CO Boiler C.L. Yeh	861
On the Design of Planetary Gear Reducer with Simple Planet Gears L.C. Hsieh and T.H. Chen	867
Parametric Study on Aerodynamic Performance of a Transonic Axial Compressor with a Casing Groove and Tip Injection D.W. Kim, J.H. Kim and K.Y. Kim	872
Performance Enhancement of a Small Centrifugal Cooling Fan S.C. Lin, C.J. Chang and M.Y. Hsieh	878
Polymerase Chain Reaction Microfluidic Devices with Integrated Water Cooling Channel J.J. Chen, C.M. Shen and S.J. Chen	883
Prediction of Swirl Flow and Heat Transfer through Square Duct with Twisted Tape Insert H.K. Kang, S.W. Ahn and M.S. Lee	888
Predictions of Maximum Forging Load and Effective Stress for Strain-Hardening Material of near Net-Shape Helical Gear Forging T.S. Yang and T.H. Yang	894
Pressure Drop of Two-Fluid Mixtures in a Y-Typed Microchannel with Varying Cross-Section Area B.R. Fu	898
Reliability Test of a Rule-Based SCR Control Strategy for Cleaner Heavy-Duty Diesel Engine using Biodiesel Blend C.C. Chou, C.J. Chiang, Y.Y. Ku and C.C. Chen	903
Reliable Method of a Non-Insulated Double-Pipe Heat Exchanger K.L. Wong, W.L. Chen and L.W. Po	908
Residual Stress and Bead Profile Analysis of Pulsed Nd:YAG Laser Lap Welding T.P. Hung, C.M. Hsu, A.D. Lin and J.H. Kuang	915
Shape Optimization of a Microchannel Heat Sink with Phase Change M.W. Heo, D.W. Choi and K.Y. Kim	919
Simulation and Control for Load Change Process on a Solid Oxide Fuel Cell D.D. Yu and M.H. Chiang	925
Simulation of Airflow in the Engine Compartment of a Light Aircraft H.J. Liu, C.C. Su and S.L. Huang	930
Simulation of NO Formation in Hydrogen-Air Counterflow Diffusion Flame Y.P. Wang and P.Y. Wang	937
Speed Design of Lift-Up Mechanism in a Welfare Vehicle D.A. Wang	944
Stability Analysis Model of a Quadruped Walking Machine at Walking up a Step Y.G. Chen and J.P. Tsai	950
Structural Optimization on Composite Blades of Large-Scale Wind Turbines K.N. Chen and W.H. Gau	958
The Analysis of Convergence of Shell Element with Rigid Body Displacements Y. Dan and Q. Wang	963
The Analysis of The Dynamic Characteristics on Seed Plate of The Vacuum Planters for Precision Sowing J.W. Lee, Y.J. Kim, S.I. Kang, J.Y. Kim and D.P. Hong	968
The Conceptual Design of Differential Mechanisms C.C. Chu	973
The Kinematic Design of Three-Speed Automatic Transmission for Electric Motorcycle L.C. Hsieh and H.C. Tang	979
The Novel Adjustable Mechanisms for Exact Multi-Path Generation R.C. Soong	983

The Possibility of Visualizing Temperature Fields Using Digital Holographic Interferometry T. Vít, V. Lédl, R. Dolecek and P. Psota	988
Torsional Strength Analysis of Output Shaft in Portal Axle Using Finite Element Analysis J.B. Ooi, X. Wang, Y.P. Lim, C.S. Tan, J.H. Ho and K.C. Wong	996
Transient Simulation Method for Autorotation in Forward Flight H.Y. Kim	1001
Two-Dimensional Simulation of EM Scattering from a Rotating Circular Dielectric Cylinder M.T. Ho	1007
Vibrational Analysis of Planetary Gear Trains by Finite Element Method P.Y. Wang and X.L. Cai	1012
Intelligent Modeling and Optimization of Carbon Anode Baking Temperature X.B. Li, T. Hu, H.Y. Sun, N.J. Xia and J.H. Wang	1018
Modeling of Flyback Converter for Micro Machining Biomedical Component N. Mahmud, A. Yahya, M.R. Abdul Kadir, T. Andromeda and N.L. Hashim	1028

Chapter 3: Energy and Power Engineering

Dynast – Computer Program Used in Power Engineering L. Nohacova and K. Nohac	1035
Efficiency Analysis of Subsystems of Compressed Air Wind Energy System D. Shaw, C.T. Liu, J.Y. Cai and Y.C. Sun	1039
Establishment of a Removable Experiment Platform for VAWT S.C. Lin, F.S. Chuang and H.A. Yanto	1046
Experiment of a Tesla Engine for Wind Energy Capture D. Shaw, F.T. Liu and J.J. Yu	1051
Information Security Study on Innovative Power Meter System T.W. Lin, F.T. Wang and T.D. Wu	1057
Wind Energy Potential in Taiwan T.H. Chen, V.T. Tran, N.C. Yang and T.Y. Hsieh	1062
Wind Energy Conversion System Power Forecasting Using Radial Basis Function Neural Network W.Y. Chang	1067
Control and System Integration of a Small Vertical-Axis Wind Rotor Coupled a Generator Having Two Windings Y.C. Hsiao	1072
Emergency Generators Planning for a Mass Rapid Transit System C.T. Hsu, L.J. Tsai and T.J. Cheng	1077
Innovated Fault Diagnosis for Power Transformer Using Hybrid Fuzzy Dissolved Gas Analysis C.H. Liu, L.T. Yao, T.B. Lin and S.Y. Wang	1082
OO-Based STATCOM Installation for Power System Loading Margin Improvement Y.C. Chang and R.F. Chang	1087
Parameter Estimation for Composite Load Model Using a Hybrid Searching Method M.Y. del Castillo, H.C. Song and B.J. Lee	1094
Particle Detector for Gas Insulated Switchgear and the Effect on Environment M.F. Agos, M.N.B. Asiah and H.A. Rahim	1099
Simulation Panel on Conductivity for Polarization and Depolarization Current (PDC) Measurement of Offline Monitoring Using LabVIEW Z.R.B. Addawiyah, M.N.B. Asiah, I.I. Rafei and M.J.N. Akmal	1104
The Effect of Electrical Switch Structure to the Contact Voltage-Drop and Temperature Variations C.W. Huang	1109
Transformer Faults Classification Based on Polarization and Depolarization Current (PDC) Measurement Test Data on Mineral Oil Samples V. Ramachandiran, N.A. Muhamad and M.A. Talib	1116

A Research for Site Detection Scheme for the High Temperature Superconducting Cable from the Electrical Point of View	1121
D.H. Yoon, H.S. Lee, B.M. Yang and G.S. Jang	
Comparative Study on Effect of Temperature & Moisture on Transformer Insulation Conductivity	1126
A.A. Suleiman, R.A.B. Zainir, N.A. Muhamad and N. Bashir	
HVDC Switching Using Microprocessor for Polarization and Depolarization Measurement	1131
R.M. Khair, K.N. Faizal and N.A. Muhamad	
Investigation of Plasma Generator Driving by High-Frequency High-Voltage Electric Source	1136
Y.N. Chang and C.M. Kuo	
The Energy Storage System for Light Trails Applications Based on the Supercapacitors	1141
P. Drabek and L. Streit	
Application of LAPUR6 to Lungmen ABWR Stability Analysis	1146
H.T. Lin, J.R. Wang and C.K. Shih	
Various MTC Studies of TRACE with RCS Pressure Predictions under ATWS for Maanshan	1151
C.H. Chen, J.R. Wang, H.T. Lin and C.K. Shih	
Applying Innovative Models for Forecasting Small-Area Peak Electrical Loads	1156
F.F. Chen, S.C. Chou and T.K. Lu	
PV Model with Energy Balance Equation for Commercial PV Modules	1163
H.L. Tsai and C.J. Yang	
Critical Electric Field of InGaN p-i-n Solar Cell	1168
D.Y. Lin and C.Y. Chi	
A Study of Solar Energy Produce Hydrogen Combine Fuel Cell Generator System	1173
C.M. Chung and C.C. Lin	
Energy Billing System with Demand Control	1177
M.J. Chen, Y.C. Wu and C.T. Gu	
A Passive Islanding Detection Method for Grid-Connected Renewable Generation System	1182
W.Y. Chang	

Chapter 4: Architecture, Civil and Industrial Engineering

A Study on the Development Direction of Korean Green Building Assessment by Analyzing Comprehensive Scoring Methods	1189
E.M. Shin, S.W. Shin and S.H. Tea	
Fundamental Elements of Malaysia Green Highway	1194
I. Mohd Affendi, Z. Rozana, B.A. Sani, K.S. Foo, M. Ain Naadia, Y. Yazlin Salfiza, M.Z. Rosli, M. Mushairry, I. Hasrul Haidar, H. Norhaliza, M. Nurfatimah and A.M. Muhd Zaimi	
The Analysis and Application of Architectural Meteorology for Low Carbon Buildings in Taiwan	1198
Y.S. Chang, H.Y. Liao, W.H. Lu and C.C. Liao	
An Optimal Design for the Capacitated Hub Location Problem with Asymmetric Allocation	1203
J.U. Sun	
An Investigation into the Strength of Concrete-Filled Tubes	1208
W.T. Hsu, D.M. Lue and C.Y. Chang	
An Experimental Study on the Connection of Diaphragm in Prefabricated Bridge	1215
T.W. Kim, D.Y. Cho and S.K. Park	
Analytical Simulation of Axial Behavior of RCFT Wall	1220
J.H. Moon, D.E. Lehman, H.J. Ko and H.E. Lee	
A Study on the GA-Based Design for Recycled Aggregate Concrete	1225
W.J. Park	
Reinforced Concrete Finite Element Analysis Incorporating Material Nonlinearity and Failure Criteria Aspects	1230
S. Tudjono, A.L. Han and L.H. Hariwijaya	
Microstructure and Mechanism of Concrete Using Inorganic Silicate Admixture	1235
S.Y. Zou, R. Huang, A. Cheng, W.T. Lin and J.L. Chang	

The Application of MRI for Scanning Internal Cracks of Cement-Based Material H.W. Chiang, R. Huang and C. Tsai	1242
Assess of the Nuclear Power Plant Structures Residual Life and Earthquake Resistance V. Salajka, P. Hradil and J. Kala	1247
Control of Lateral Displacement for Super Tall Building by Floor & Partial 3D Brace S.W. Shin, C.K. Jung and K.S. Lee	1251
Full-Scale Measurements on Vibrations of a 51-Story Tall Building Due to a Major Earthquake and Typhoon K.S. Liu and Y.B. Tsai	1259
Local Characteristics of Light-Framed Wood Buildings in Preparation for Wind Load K.J. Ahn and C.H. Baek	1264
Response of Water Tower on Wind Induced Vibration Considering Interaction of Fluid and Structure J. Kala, V. Salajka and P. Hradil	1269
Shear Characteristics of Large Anchorage System S.W. Shin, K.S. Kim and K.S. Lee	1273
Two-by-Four Construction System for Earthquake Preparation K.J. Ahn and C.H. Baek	1280
Cross Modal Strain Energy Method for Damage Detection Using Limited Modal Data S.Q. Wang, M. Zhang and F.S. Liu	1285
Curriculum Innovation for Fostering Green Building Literacy in General Education K.Y. Shiao, M.L. Lin and Q.C. Sung	1290
Durability Analysis on Reactive Powder Concrete as Barrier Materials for Low-Level Radioactive Waste Disposal M.L. Chuang and W.H. Huang	1295
Effective Steel Area of Fully Embedded Cold-Formed Steel Frame in Composite Slab System under Pure Bending Y.L. Lee, C.S. Tan, Y.H. Lee, S. Mohammad, M.M. Tahir and P.N. Shek	1300
Effects of Site Classification on Empirical Correlation between Shear Wave Velocity and Standard Penetration Resistance for Soils C.G. Tan, T.A. Majid, K.S. Ariffin and N.M. Bunnori	1305
Energy Consumption and Potential Retrofitting of Rest and Service Areas (RSAs) in Malaysia Case Study Z. Rozana, K.S. Foo, F. Ainee, M.Z.A. Majid, R.M. Zin, M.R. Hainin, H. Yaacob, H. Norhaliza, S.O. Balubaid, M. Ain Naadia, I. Mohd Affendi, Y.S. Yazid, I. Hasrul Haidar and M. Nurfatimah	1311
Evaluation of Degradation of Concrete Exposed to High Temperature by Means of Ultrasonic Pulse Method J. Brozovsky, L. Bodnárová, R. Hela, R. Drochytka and V. Hela	1315
Evaluation of Tip Capacity Analysis Model for Drilled Shafts in Gravelly Soils Y.J. Chen, M.C.M. Marcos, T.H. Chu and H.W. Wu	1320
Evaluation on CO₂ Emission of Light Weight Steel Housing in Taiwan Y.S. Chang, K.P. Lee and W.S. Ou	1325
Experimental Investigation of Retrofitted Extended End-Plate Connections P.N. Shek, M.M. Tahir, C.S. Tan and A. Sulaiman	1330
Flexural-Torsional Buckling of Double-Angle Compression Members J.L. Liu, D.M. Lue and C.H. Lin	1334
Geochemistry Properties of Southern Malaysian Organic Soil F.N.L. Ling, K.A. Kassim, A.T. Abdul Karim, K. Tiong and C.K. Tan	1340
Impact on the Strength of Newly-Placed Concrete-Filled Tube under Earthquake Excitation J.L. Liu, D.M. Lue and P.T. Chung	1345
Implementation of a Vibration-Based Bridge Health Monitoring System on Scour Issue T.K. Lin, Y.P. Wang, M.C. Huang and C.A. Tsai	1351
Influence of Open Channel on Explosion-Induced Vibration Wave Propagation I.T. Wang and C.Y. Lee	1358
Using Acousto-Optic Coupling Technology to Investigate the Fracture Evolution of Rock-Like Materials during Inclined Shear Tests L.H. Chen, G.Z. Lin, Y.C. Chen and W.X. Yang	1363

The Influence of Soil Grading and Compaction Pressure on Characteristics of Compressed Cement-Soil Materials	1368
H.M. Kwon and L.A. Tuan	
The Appropriate Fire Prevention Technology for Historic Buildings	1373
I.J. Wen and M.J. Lee	
The Application of Light Weight Aggregate Using Reservoir Sediments for Concrete Filled Columns	1379
J.L. Liu, D.M. Lue and P.T. Chung	
Structural Performance of the Tensioning Air Beam System and its Analytical Modeling	1385
K.Y. Baek and D.J. Kim	
Structural Performance of High Strength Concrete Filled Steel Tube with the Width-to-Thickness Ratio	1390
G.H. Hong, W.K. Kim, I.R. Choi and K.S. Chung	
Structural Behaviour Evaluation of Natural Draught Cooling Towers under the Consideration of Shell-Geometric Parameters	1396
S.Y. Noh and S.Y. Lee	
Strength Performance of T-Headed Rebar in Concrete	1401
C.K. Chiu, K.N. Chi and K.C. Lin	
Solar Façade for a Combined Heating and Cooling System in London	1409
H.Y. Chan, S. Riffat and J. Zhu	
Simulation of Accordion Effect of I-Girder with Corrugated Steel Webs	1416
H.J. Ko, J.H. Moon and H.E. Lee	
Response Spectrum Analysis of the Condensate Storage Tank in a Nuclear Power Plant	1421
W.T. Lin, M.H. Hsieh, Y.C. Wu and C.C. Huang	
Numerical Modelling of Stiffness and Strength Behaviour of Top-Seat Flange-Cleat Connection for Cold-Formed Double Channel Section	1426
Y.H. Lee, C.S. Tan, Y.L. Lee, M.M. Tahir, S. Mohammad and P.N. Shek	
Mountain Roads Design Using Ecological Engineering Methods and Traditional Engineering Methods Comparison Study	1431
T.T. Chen and Y.T. Hsu	
Model Simplification for Offshore Platforms Using Model Refinement Scheme	1436
M. Zhang, S.Q. Wang, J.L. Fu and X.L. Xu	
Live Load Distribution in Prestressed Concrete Girder Bridges with Curved Slab	1441
D.Y. Cho, S.K. Park and W.S. Kim	
A Risk-Based Approach to Determine the Optimal Service Life of Steel Buildings in Seismically Active Zones	1446
C.K. Chiu and H.Y. Chang	

Chapter 5: Environmental Sciences and Engineering. GIS

Case Study on the Environmental Education Application Status for Water Recycling Facilities in Elementary and Junior High Schools in Yilan	1453
H.R. Hsieh	
Integrating Principle Component Analysis and Canonical Correlation Analysis for Monitoring Water Quality in Storage Reservoir	1458
M.C. Chan, I.C. Lou, W.K. Ung and K.M. Mok	
The Evaluation of River Conditions in the Lanyang Plain through the River Ecological Corridor Approach	1463
H.R. Hsieh	
Sequestration of CO₂ in Geological Media: A Case Study of the Saline Reservoir Using Parallel Computing for Multi-Well Injection	1468
C.H. Tseng, C.C. Kuo, W.C. Su and C.L. Lai	
Reservoir Drought Prediction Using Two-Stage SVM	1473
J.L. Chiang and Y.S. Tsai	
Recycling Applications of Microalgal Carbon Fixation Conducted by Taipower	1478
F.F. Chen, S.C. Chou and H.W. Chen	
Probability Distribution of Tidal Elevation Data around Korean Coasts	1484
H.Y. Cho, S.T. Jeong, D.H. Ko and S.H. Lee	

Prediction of Regolith Depth Using Topographic and Environmental Variables in the Central Mountain Division, Taiwan P.L. Li, T.T. Yu, S.T. Lee and T.S. Wang	1489
Mission Track Coordination Based Multi-Objective Optimization for Multi-Satellite Imaging Scheduling S.Y. Li, Y.Y. Yeh and F.T. Hwang	1494
Loss Curve Analysis of a Debris Flow: A Case Study on the Daniao Tribe H.C. Li, K.F. Liu and Y.C. Hsu	1499
Environmental Sustainability Assessment Based on the Concept of Carbon Carrying Capacity B.G. Lee and K. Lee	1511
Analysis of Spatial Distribution of the Neolithic Settlements in Zhengzhou-Luoyang Area by Using GIS W.W. Qiao, S.B. Bi, Q.F. Wang and J.T. Liang	1518
Directly Georeferenced Ground Feature Points with UAV Borne Photogrammetric Platform without Ground Control M.L. Tsai, K.W. Chiang, C.F. Lo and J.Y. Rau	1523
Tracking Multiple Fishes Using Colour Changes Identification and Enhanced Object Tracking Algorithm W.P. Lee, M.A. Osman, A.Z. Talib and K. Yahya	1528

Chapter 6: Medical Machinery and Technologies. Innovative Developments

Bone Trabecula Surface Reconstruction for Cranium Scaffold in Bone Tissue Engineering S.X. Zheng, J. Li and Z.H. Gong	1535
Design and Development of Oral Appliance for Obstructive Sleep Apnea Y.B. Lai, D.Y. Huang, S.J. Hwang, H.H. Lee and Y.S. Chang	1540
Improved Functional Approach on Hip Joint Center Estimation H.I. Lin, C.L. Chen and Y.P. Chiang	1547
Measurement of the Human Cochlear Spiral Curvature <i>In Vivo</i> J.F. Yu and K.C. Lee	1552
Relationships and Comparisons of Finger Surface Temperature Measurements from Three Different Kinds of Temperature Sensors F.L. Jang and C.C. Lin	1559
The Development of the Liquid Cell Smear Device for Liquid-Based Cytology Test H.Y. Oh, H.J. So, S.H. Kim, D.W. Kim and H.C. Kim	1564
The Non-Invasive Measurement of Geometry of Human Ossicles J.F. Yu and C.L. Fan	1569
Use of Data Mining Techniques to Detect Medical Fraud in Health Insurance K.C. Lin, C.L. Yeh and S.Y. Huang	1574
Application of Electronic Nose Technology in Breath Tests for Patients with Diabetes C.N. Lee	1579
Efficient RPM Method for Detecting R and S Waves of ECG Signals Y.C. Yeh, C.W. Chiou and H.J. Lin	1584
A Bridging Method between 2D and 3D Cephalometry Using Computed Tomography Synthesized Cephalograms J.J. Fang, J.K. Liu, C.W. Chang and Y.C. Lin	1589
A Novel Approach to Predict Schizophrenia Disease: Conceptual Framework H.C. Loh	1596
A Study on the Control of Bio-Aerosol for Prevention of Indoor Aerial Infection Using Antimicrobial Air Filter K.M. Lee, B.H. Lee and C.J. Park	1601
An Application of CLPFG for Detecting Diabetes Mellitus C.H. Hsu, C.C. Chiang and C.H. Ou	1606
An Expert System for 2D Stress Analysis of Human Teeth Q. Li and C.A. Rubin	1611

An FPGA-Based Brain-Computer Interface for Wireless Electric Wheelchairs J.S. Lin and S.M. Huang	1616
An Improved Demon Registration with Mutual Information for Non-Rigid Medical Images X.H. Xie, C. Ma, Q. Sun and R.X. Du	1622
An Ultra-Low Power Holter and Low Complexity Design Using Mixed Signal Processor H.C. Huang, C.T. Hsieh and G.L. Hsieh	1627
Computer-Aided Dental Implant Technology Y. Ting and T.K. Huang	1633
Bed Site Health Care Video-Phone System Y.F. Chung, M.Y. Tsai, E.P. Wu, D.L. Chiang, C.C. Lee, T.C. Hsiao and T.S. Chen	1636
Effects of Cardiovascular Stent Design on Wall Shear Stress Distribution in Straight and Curved Arteries H.M. Hsiao, Y.C. Liao, C.H. Lin, F.Y. Liu and Y.M. Tsuei	1642
Interactive 3D Simulation System for Orthodontic Treatment of Malocclusion C.H. Kim, J.H. Shin and S.J. Lee	1647
The Study on the Correlation of Vibration Stimulation Intensity and Muscle Activity H.J. So, H.Y. Oh, S.H. Kim and D.W. Kim	1651
The Potential Predictors of Motor Performance Outcomes after Rehabilitation for Patients with Stroke J.D. Lee, T.C. Chang, S.T. Yang, C.H. Huang and C.Y. Wu	1656
The Encoding Analysis of Brainwave for Direction Recognition F.C. Kao, S.P.R. Wang, C.C. Hung, C.C. Chen and J.Y. Du	1661
The Application of LSA in TCM Syndromes Classification Y.F. Gan, Z.W. Ni and F. Lin	1666
Study of Quality Evaluation Indexes in Filtered ECG Signal G. Zheng, M.L. Sun and Y. Gu	1671
Spatial Imaging of the Human Tympanic Membrane J.F. Yu and C.L. Fan	1676
Solitary Pulmonary Nodule Detection on Thoracic CT Images through Object Continuity Analyses S.L. Lee and D.H. Cho	1681
Physical Rehabilitation Assistant System Based on Kinect T.T. Liu, C.T. Hsieh, R.C. Chung and Y.S. Wang	1686
Obstructive Sleep Apnea Identification by Heart Rate Features Derived from Intrinsic Mode Function K.M. Chang and S.H. Chen	1691
MID-Based Instant Transmission of Radiological Images for Emergency Teleconsultation S.J. Hsu, K.H. Chen, C.N. Huang, C.Y. Chiang and C.T. Chan	1698
Location-Based Service (LBS) Falling-Detection and Alarm System by Smartphone B.C. Lo	1704
Tracking Contrast Agents from Ultrasound Image Using Texture Preserving Optical Flow Estimation J.H. Lee and S.M. Kim	1709
The Head Shadow Phenomenon Affected by Sound Source: <i>In Vitro</i> Measurement J.F. Yu and Y.S. Chen	1715

Chapter 7: Sensors, Mechatronics and Robotics

A Low Cost and Efficient Volumetric-Error Measurement Method for Five-Axis Machine Tools S.M. Wang, H.J. Yu and H.W. Liao	1723
A Low Power CMOS Temperature Sensor S.C. Yi	1729
A Real-Time Center of Gravity Trajectory Generation of a Biped Humanoid under Variable Reference ZMP Trajectory I.W. Park, B.K. Cho and J.Y. Kim	1734
A Wave-Powered Technique for Water Column Profiling J.B. Jiang, Z.T. Ni, S.R. Li and D.J. Gong	1739

An Adaptive Nonlinear Trajectory Tracking Design for Mobile Robots and its Practical Implementation Y.H. Chen, T.H.S. Li and Y.Y. Chen	1744
Analysis of the Degradation Tendency of NPP Cables Using a Wireless Cable Indenting Robot K.N. Jang, J.S. Kim, S.C. Jeong, K.H. Park and S.Y. Hong	1749
Application of Magneto Rheological Damper on Semi-Active Suspension System Y.J. Shiao, Q.A. Nguyen and C.C. Lai	1754
Backstepping Adaptive Iterative Learning Control for Robotic Systems Y.C. Wang, C.J. Chien and C.N. Chuang	1759
Bayesian Estimation Algorithm Applying in Gas Detection Modules K.L. Su, S.W. Shiao, Y.L. Liao and J.H. Guo	1764
Blowers of Vacuum Cleaners Utilizing Coreless and Sensorless Axial-Flux Motors with Edge-Wire Coils H.C. Yu, C.C. Wang, C.S. Jang, W.Y. Peng and T.S. Liu	1770
Control and Response Characteristics of a Mixed Mode MR Damper for a Multi-Story Structure K.G. Sung	1778
Control Hardware Design of a Robotic Follow Spot System M.H. Oh and I.W. Park	1783
Cross-Coupling Controller for Five Degree-of-Freedom Coplanar Nanostage V.T. Liu	1788
Design and Application of Low Cost Redundancy Interface for UAV Distributed Servo System B. An and X.L. Zhang	1794
Design and Experimental Results of a Quad-Rotor Control System T.S. Kang, G.G. Lee and J.H. Kim	1799
Design and Performance Evaluation of Modular Electro-Mechanical Actuator M.K. Park, S.J. Go, Y.J. Lee and K.G. Sung	1806
Design for a Novel Electromagnetic Valve for Camless SI Engines L.V. Dat, Y.J. Shiao and C.H. Huang	1811
Development of a Web-Based Virtual Five-Axis Milling Toolpath Simulation System Y.C. Kao, M.S. Chen and T.H. Chiu	1816
Development of an Onboard Automatic Tire-Wear Warning System Y.J. Shiao, C.W. Shiao and C.S. Shiao	1821
Development of the Searching Algorithm with Complexity Environment for Mobile Robots Y.C. Lin, K.L. Su and C.H. Chang	1826
Dynamic Characteristics and Finite Element Model Updating of Micromachined Torsion Structures W.H. Gau, K.N. Chen and Y.L. Hwang	1831
Dynamic Stiffness Effects on Robot Safety and Performance in Human-Friendly Robots D.J. Shin	1836
Embedded Force Control Gripper for Frangible Fruit Robotic Manipulation S.J. Huang, W.H. Chang and J.Y. Lin	1841
Evaluation of Analytical and Finite Element Modeling on Coupled Field Dynamics of Piezoelectric Cantilever Bimorph Harvester L. Zhang, K.A. Williams and Z.C. Xie	1846
Fast Development of Flexible Motor Control System with Model Based Design F.F. Kong, J. Hu, T. Tao, X.S. Mei and Y.Q. Zhang	1851
Force and Position Control of the Pneumatic Cylinders through a Microscope with a CCD Camera H.I. Chen and M.C. Shih	1856
Improving the Accuracy of Depth Estimation in Binocular Vision for Robotic Applications K.Y. Chen, C.C. Chien and C.T. Tseng	1862
Mechatronic System Design for Science/Work Class ROV L.J. Mu, E. Chen, S.W. Huang, K.L. Chen, J.C. Chao, C.S. Shih, C.Y. Chen, W.C. Yang and J.H. Guo	1867

Micro Pressure, Temperature and Flow Sensors for Integration in Micro Methanol Reformer	1872
C.Y. Lee, S.J. Lee, Y.T. Cheng and Y.M. Chang	
Motion Planning of Multiple Pattern Formation for Mobile Robots	1877
J.H. Guo, Y.C. Lin, K.L. Su and B.Y. Li	
New Fault-Tolerant Scheme for Flight Control System of Unmanned Aerial Vehicles	1883
J.H. Pan, X.L. Zhang, S.B. Zhang and H. Ma	
Panda Robot: Kinematic Design and Simulation for Quadrupedal Walking	1888
C.Y. Lin, Y.P. Chiu, L.C. Cheng, C.C. Huang, P.C. Jo and W.L. Lin	
Passivity-Based Parameter Estimation and Position Control of Induction Motors via Composite Adaptation	1894
J.Y. Chen	
Piezo-Actuated Micro-Drilling Process Control by Using an Adaptive Sliding Controller with Fuzzy Compensation	1899
H.Y. Chen	
Quasi-Static Step Number Determination Method of a Quadruped in Step Crossing	1904
S.H. Park and D.P. Hong	
Realization of a Motion Control System for Wafer-Handling Robot Using SoPC Technology	1909
H.H. Chou, Y.S. Kung, T.W. Tsui and S. Cheng	
Real-Time Navigation for a Humanoid Robot Using Particle Filter	1914
J. Baltes, C.T. Cheng, M.C. Lau and A. Espinola	
Robust Adaptive Trajectory Control for an Omnidirectional Vehicle	1919
Y.C. Yang, C.C. Cheng and C.Y. Chen	
Studies on the Exchangeability of Different APT Interpreters for 5-Axis Machine Tool Applications	1924
H.Y. Cheng and Y.C. Kao	
Synthesis of Two-Degree-of-Freedom Rotational Decoupled Manipulators of a 2R-Type Branch	1929
D.X. Zeng, W.J. Lu, L.J. Zhang and Y.T. Zhang	
System Identification and Robust Control of a Pneumatic Muscle Actuator System	1936
L.H. Lin, J.Y. Yen and F.C. Wang	
The Effect of Thermal Contact Resistance on Heat Management in a Shuttling PCR System	1941
J.J. Chen, W.H. Chen and Y.S. Shie	
The Fault Tolerant Output Selector Based on Fault-Detection Considering Realistic Fault Modes for Pedal Simulator of Brake-by-Wire System	1946
J.H. Li, M.B. Park and H.M. Kim	
The Nonexistence of Three Degrees of Freedom Rotational Fully Decoupled Parallel Mechanism	1951
Y.L. Hou, D.X. Zeng, Y.B. Duan and Y.S. Zhao	
The Performance Analysis of an AKF Based Tightly-Coupled INS/GNSS Sensor Fusion Scheme with Non-Holonomic Constraints for Land Vehicular Applications	1956
K.W. Chiang, C.A. Lin and K.Y. Peng	
The Squeeze Film Damping Effect on Dynamic Responses of Micro-Electromechanical Resonators	1961
S.C. Sun, C.W. Chung, C.M. Hsu and J.H. Kuang	
The Vibration Problem Studying in Micro Actuator System Using the Differential Transformation Method	1966
C.C. Liu and M.F. Chen	
T-S Fuzzy Tracking Control of a 2-DOF Rehabilitation Robot Using System Identification	1971
M.K. Chang and M.L. Chen	
Unmanned Vehicle Obstacle Avoidance Using Single Sensor Scan Method and Danger Zone Estimation	1976
T.J. Lin and T.C. Wang	
A Channel Reuse Procedure in Clustering Sensor Networks	1981
M. Wu, B.C. Ahn and C.G. Kim	
A High Sensitivity Index Sensor Based on No-Core Fibers	1986
G.R. Lin, M.Y. Fu, H.J. Sheng, H.T. Sun and W.F. Liu	
A Learning Concentration Detection System by Using an Artificial Bee Colony Algorithm	1991
Y.N. Su, C.C. Hsu, H.C. Chen, K.K. Huang and Y.M. Huang	

A Low Cost System for 3D Motion Analysis Using Microsoft Kinect H.T. Pham, J.J. Kim and Y.G. Won	1996
A Novel Energy Efficient Joint Dynamic Emissive Location-Based Routing Scheme for SOFAR Channel Underwater Sensor Networks C.S. Tsai and C.F. Yang	2001
A Novel Wireless Thermal Convection Type Angular Accelerometer Integrated with an Active RFID-Tag J.M. Lin, K.H. Cho, C.H. Lin and H.H. Lu	2005
A Positioning Scheme Combining Kalman Filtering with Vision Assisting for Wireless Sensor Networks F. Tsai, Y.S. Chiou and H. Chang	2009
A Robust Occupancy-Based Building Lighting Framework Using Wireless Sensor Networks R.S. Hsiao, D.B. Lin, H.P. Lin, S.C. Cheng and C.H. Chung	2015
A Study on the Implementation of Dynamic Routing Algorithm to Improve Efficiency for Wireless Sensor Networks W.H. Choi and M.S. Jie	2021
An Efficient Positioning Algorithm Based on PID in Indoor Spaces Using RFID Technology Y.L. Chen and Z.R. Chen	2027
Design and Fabrication of the Piezoelectrically Actuated Micropump with Implanted Check Valves C.H. Cheng and Y.P. Tseng	2032
Development of a Portable Automated Piano Player CantaPlayer J.J. Tan, J.C. Ong, K.K. Chan, K.H. How and J.H. Ho	2037
Dynamics of New Electromagnetic Valve in Camless Engines L.V. Dat, Y.J. Shiao and K.H. Tsou	2044
Energy Efficient Sensor Configuration by Fishing Spider Inspired Mechanism K.H. Lee and H.S. Lee	2049
Estimation of Occluded Lower Limb Using Inverted Pendulum Model H.K. Tenn and Y.Y. Tsai	2056
Grade Diffusion Algorithm J.H. Ho, H.C. Shih, B.Y. Liao and J.S. Pan	2064
Grating-Coupled Surface-Plasmon-Resonance Biosensor Discs with a C-Type Fluidic Channel for Monitoring Growth of Self-Assembled Monolayer J.N. Yih, K.C. Chiu, S.Y. Chou, C.M. Lin, Y.S. Lan, S.J. Chen and N.J. Cheng	2069
Implementation of Lane Departure Warning System Based on Machine Vision J.S. Sheu, H. Chu and C.C. Liu	2075
Iterative Learning Control of a Piezo-Actuated Positioning Stage for Micro/Nano Manipulation C.J. Lin, C.K. Chen and C.T. Chen	2080
Windshield Warning System for Intelligent Vehicles C.Y. Lin, J.F. Jiang, Y.J. Chen, H.Y. Wei and C.H. Wang	2085
Visual Servo Tracking Control for Slider Robot Using CMAC Neural Network Recognition Approach C.P. Hung and F.T. Hsieh	2092
Two Fluid Mixing in a Micromixer with Helical Channels and Grooved Surfaces Y.H. Hu, F.S. Hwu and K.H. Lin	2096
Train Detection by Magnetic Field Measurement with Giant Magnetoresistive Sensors for High-Speed Railway S. Zhang, W.K. Lee and P.W.T. Pong	2102
The Single-Pass Perceptual Embedded Zero-Tree Coding Implementation and Optimization on DSP B.F. Wu, H.Y. Huang, J.H. Wang and Y.L. Chen	2115
The Box-Cox Transformation-Based ARFNNs for Identification of Nonlinear MR Damper System with Outliers and Skewness Noises P.Y. Chen, Y.Y. Fu, K.L. Su and J.T. Jeng	2120
Study on One-Dimensional Scanning Semiconductor Lidar Z.S. Tian, L.J. Sun, L.B. Liu, Z.H. Cui and S.Y. Fu	2124

Self-Tuning RBFNs Mobile Robot Systems through Bacterial Foraging Particle Swarm Optimization Learning Algorithm	2128
S.M. Joug, H.M. Feng and D.H. Guo	
Scaling Issues of Micro Catalytic Reactors	2137
T.S. Leu and S.Y. Li	
Robot Simultaneous Localization and Mapping Using Speeded-Up Robust Features	2142
Y.T. Wang, C.T. Chi and Y.C. Feng	
Reliable Cluster-Based Routing Algorithms in Wireless Sensor Networks	2147
S.G. Kim	
Reaching Agreement in a Dual Fallible Cluster-Based Wireless Sensor Network	2152
S.C. Wang, K.Q. Yan, C.L. Ho and S.S. Wang	
pH Value Detection with CLPFG Sensor	2157
C.C. Chiang, C.H. Hsu and C.H. Ou	
New Type Small-Angle Sensor Based on Multiple Total Internal Reflections and Attenuated Total Reflections in Heterodyne Interferometry	2162
S.F. Wang, H.S. Tsai, Y.F. Chau, W.N. Yang, A.L. Liu and F.H. Kao	
Multi-View 3D Object Reconstruction Using Coordinate Transformation	2167
J.H. Park	
Low Luminance Dynamic Range Converter for Vehicle Application	2171
Y.C. Fan and J.H. Shen	
New Drift Reset Method for Pedestrian Tracking with a Low-Cost IMU	2176
Y.T. Chuang, C.T. Shen, Y.L. Hsu and S.W. Shih	
Visualization in a Virtual Laboratory: An Approach Using a Collaborative Simulation for Electro-Mechanical System	2181
S.J. Kim, N.R. Lee, J.H. Lee and H.S. Mok	

Chapter 8: Automation and Control

A Novel and Experimental Design for Mechanical Ventilation with Optimal Spontaneous Flow Pattern and WOB Feedback Control	2189
S.L. Lin, S.S. Hung, C.K. Chen and H.C. Chang	
A Novel Hybrid Recurrent Wavelet Neural Network Control for a PMSM Driven Electric Scooter	2194
C.H. Lin and C.P. Lin	
Achieving Passive Integral Control Using Feedback and Output Redefinition	2199
L.Y. Liu and H.C. Lin	
Adaptive Single-Neuron Proportional-Integral-Derivative Controller Based on Memristor	2205
X.Y. Fang, L.D. Wang and S.K. Duan	
Advanced Mode Control Strategies for Inverter Based Distributed Generators in Micro-Grids	2210
T.T. Ma and S.Y. Ho	
An Intelligent Garbage Can Decision-Making Model Evolution Algorithm on Optimal Design of Fuzzy Controller of Intelligent Lighting Systems	2215
C.H. Lin, H.C. Kuo and C.T. Lee	
Assembly Sequence Planning Based on Max-Min Ant Colony System	2220
J.P. Yu and C.E. Wang	
Delayed State Feedback Control for Singular Plants with Device Delay	2228
C.M. Lee and J.H. Huang	
Design and Experiment of Iterative Learning Controller Based on Particle Swarm Optimization Approach with New Bounded Constraints Technique	2233
Y.C. Huang, Y.H. Li and S.T. Li	
Extension of Elementary Siphons in a Class of Generalized Petri Nets	2238
Y.F. Hou, Z.W. Li, M. Zhao and D. Liu	
Fuzzy Simplex-Type Sliding-Mode Control	2244
T.T. Chen and S.C. Kuo	
Intelligent Sliding-Mode Control for Knee Rehabilitation System	2249
M.S. Hsieh, C.S. Chen and K.S. Chien	

Interacting Multiple Model Particle Filters for GPS/INS Integration D.J. Jwo, F.C. Chung and K.L. Yu	2255
MRF Hydraulic Mount System of Coach and Research of its Fuzzy Control Y. Zhang, Z.B. Chen and Y.H. Jiao	2261
PID Controller Tuning by Differential Evolution Algorithm on EDM Servo Control System T. Andromeda, A. Yahya, S. Syahrullail, A. Baharom and N.L. Hashim	2266
Pitch Attitude Control Design of Unmanned Aerial Vehicle via Hardware-in-the-Loop Simulation Y.P. Sun and Y.C. Liang	2271
Quality Inspection of the Riveting Process by Neural Networks H.C. Chen, Y.J. Chen, H.L. Wang, C.Y. Chang, P.H. Weng and R.C. Hwang	2276
Real-Time Breakthrough Detection for Laser Drilling Based on Coaxial Visual Sensing Technology C.C. Ho, J.C. Hsu, Y.J. Chang, C.L. Kuo and J.J. He	2281
Remote Filter Design for Discrete Singular Systems C.M. Lee and W.C. Chiu	2286
Research on the Fuzzy PID Controller Based on PLC Applied in the Cold Pellet Production M.C. Xiong, L.L. Wang and Y.H. Jiang	2291
Robust Adaptive Controller Design for a Quadrotor Helicopter K.S. Yang and C.C. Cheng	2296
Robust Control Design Based-On Integral Sliding-Mode Control C.C. Feng, L.P. Yin and E.C. Chang	2301
Robust Exponential Stability for Uncertain Neutral Systems with Interval Time-Varying Delay and Nonlinear Perturbations J.D. Chen, R.S. Chen, C.T. Lee and C. Lu	2305
Robust Finite Time Controller Design for Second Order Underactuated Mechanical Systems K.S. Yang, C.C. Cheng and J.H. Yang	2310
Signed-Distance Fuzzy Sliding Mode Position Control for an Energy-Saving Electro-Hydraulic Control System M.H. Chiang, C.C. Cheng, L.W. Lee, M.C. Jiang and J.H. Lin	2315
Sliding Mode Control for the Dual-Excited and Steam-Valving Control of Synchronous Generator Y.T. Chang, C.C. Wen, S.W. Lin and Y.C. Chen	2320
Sliding-Mode Tracking Control of a Precision Stage J.C. Shen and C.C. Yan	2325
Switching-Type Self-Tuning Fuzzy PID Control of an Active Magnetic Bearing System K.Y. Chen, P.C. Tung and Y.H. Fan	2330
Takagi-Sugeno Fuzzy Estimator Design for Adaptive Vector Control Systems S.Y. Wang, C.L. Tseng, S.C. Lin, J.H. Chou and C.C. Chen	2337
The Study on Robust Controller Synthesis Using Genetic Optimization Algorithm Integrating Taguchi Methods H.N. Shou	2341
Voltage Control of PM Synchronous Generator System Using Recurrent Wavelet Neural Network Controller C.H. Lin and C.P. Lin	2346
Wind Shear Encountered Landing Control Based on CMACs J.G. Juang, C.J. Cheng and T.C. Yang	2351
Design of Robust and Non-Fragile Kalman Filter with Polytopic Uncertainties: PLMI Approach S.H. Yang, J.K. Kim and H.B. Park	2356
Adaptive Temperature Set Point of Air Handling Units Using Fuzzy Logics H.C. Chen and C.H. Lu	2361
High Performance Power Conditioning System Using Dynamic-Game-Theory-Based Variable Structure Controller E.C. Chang, C.A. Cheng, C.H. Chang and H.L. Cheng	2367
Designing and Realizing of Universal Test and Analysis System of Avionics Data Bus J.D. Zhang, E.L. Cao, Y. Wu and G.Q. Shi	2371

Developing an Expert System of Failure Analysis Y.H. Ho, H.S. Wang and H.C. Wang	2375
GA Based Hybrid Fuzzy Rule Optimization Approach for Elevator Group Control System T.C. Chen, Y.Y. Hsu, A.C. Lee and S.Y. Wang	2380
Green Transport System: A Technology Demonstration of Adaptive Road Lighting with Giant Magnetoresistive Sensor Network for Energy Efficiency and Reducing Light Pollution Z.Q. Lei, F.H. Leung, C.H. Hau, K.S. Lui, W.Y. Szeto and P.W.T. Pong	2385
Infrastructure Damage Reporting System with Location Awareness T.S. Yen, M.A. Osman, N.P. Sing, T.C. Yong and S. Chan	2391
To Develop a Parallel Processing System with the FPGA for Multi-Axis Motion Control Platform C.K. Lai and K.L. Ho	2396
Real-Time Vehicle License Plate Recognition Based on Scanning and 2D Haar Discrete Wavelet Transform R.C. Lee, K.C. Hung and H.S. Wang	2402
Performance Improvement of Wild Flower Boundary Extraction in Complex Background X.H. Li, H.H. Lee, K.W. Chung and K.S. Hong	2407
Missile Guidance Algorithm Design Using Particle Swarm Optimization C.C. Kung and K.Y. Chen	2411
Using Bayesian Networks in Gear Fault Diagnosis C.C. Wang, Y. Kang and C.C. Liao	2416
Chapter 9: Electronics, Electrical Engineering and Power Electronics	
A Low Power CMOS Bulk-Controlled Sub-Harmonic Mixer for LTE-Advanced Applications H.C. Wei and C.L. Hsiao	2423
A Novel Data-Oriented Methodology for Designing Complex SOC System with Bluespec SystemVerilog S.L. Chu and M.J. Lo	2428
A Quick Response Power Factor Detector for Nonlinear Loads M.C. Jiang and B.J. Shih	2433
A Single-Phase Soft-Switching Unipolar PWM Rectifier M.C. Jiang, H.K. Fu and K.Y. Lu	2439
A Single-Switch HPF AC-to-DC Converter with Low Voltage Ripple H.L. Cheng, C.H. Chang, C.A. Cheng, E.C. Chang and L.R. Yu	2445
A Study of Eliminating the Protective Coordination Curve Intersection of Electromechanical Overcurrent Relays in Subtransmission Systems L.C. Lee and Y. Lu	2450
A VLSI Architecture of 2-D Discrete Wavelet Transform for Reducing Computation Time C.F. Hsieh, T.H. Tsai and C.C. Liu	2463
Airborne Panel Series Circuit Module Test System Software Design G.Q. Shi and J.D. Zhang	2468
Analysis and Design of the Active Clamp Forward Converter as a Color LED Driver C.H. Chang, H.L. Cheng, C.A. Cheng and E.C. Chang	2472
Approach to Developing Interleaved Converter with Single-Capacitor Turn-Off Snubber S.Y. Tseng and Y.R. Juang	2477
Characteristics of Memristor Series-Parallel Connection Circuit with Applications W.H. Yin, L.D. Wang and S.K. Duan	2485
Coordinated Converter-Charger for Hybrid Fuel Cell-Battery Power Sources J.J. Shieh and C.H. Chao	2490
Design and Implementation of a Fuzzy Time-Varying Sliding Regime Controlled UPS Systems E.C. Chang, C.C. Feng, H.L. Cheng and C.A. Cheng	2494
Design and Implementation of a Novel High-Step-Up DC-DC Converter C.A. Cheng, H.L. Cheng, C.H. Chang, E.C. Chang and F.L. Yang	2498

Design of Clock and Ramp Generator Circuit Framework with 0.9V Low Operational Voltage R.J. Wai and J.J. Liaw	2502
Design of High-Efficiency Voltage-Mode Class-D RF Power Amplifier for Class-S Transmitter Using Signal Analysis and Additional Multi-Section Bandpass Filter J.G. Lim, W.S. Kang, K.Y. Lee and H.C. Ku	2509
EMC Issues of Low Frequency Interference of Power Electronic Converters P. Drabek and V. Kus	2516
Implemented LDO Chip With Output Capacitors Free H.W. Tseng, Y.H. Lee, C.C. Huang, L.Y. Yen and Y.G. Jan	2521
Low-Power Fast-Settling Low-Dropout Regulator Using a Digitally Assisted Voltage Accelerator for DVFS Application W.B. Yang, C.H. Wang, H.H. Chang, M.H. Hong and J.M. Shen	2526
Twisted-Overlap Differential-Pair Approach to Increase Available Layout Space and Reliability in PCB Design C.C. Tuan, S.Y. Tan, H.L. Tseng and W.T. Huang	2531
Design and Implementation of a Dimmable LED Driver with Low-Frequency PWM Control H.L. Cheng, C.A. Cheng, C.S. Chen and K.L. Huang	2538
Improvement on Resistive Switching Characteristics of SiO₂-Based Films by Voltage Stressing J.Y. Lin and B.X. Wang	2543
Interleaved Boost Converter with Boost-Type Snubber for PV Power System S.Y. Tseng and G.K. Chang	2548
Interleaved Soft-Switching Converter with L-C-D Snubber for Reflex Charger S.Y. Tseng and S.Y. Fan	2555
Towards Motion Recognition on Smartphone Y.T. Kwak and H.S. Jo	2561
Resistive Switching Characteristics in Nanocrystalline Silicon Films for Conductive-Bridging Resistive Random-Access Memory Applications J.Y. Lin and B.X. Wang	2565
Predicting Equation of Transient Position-Probability Density for Nano-Tunnel Problem in SET S.C. Lin and H.C. Shih	2570
Performance Evaluation for Dynamic Voltage and Frequency Scaling Using Runtime Performance Counters W.Y. Liang, M.F. Chang, Y.L. Chen and J.H. Wang	2575
Monte-Carlo Analysis of a New 6-T Full-Adder Cell for Power and Propagation Delay Optimizations in 180nm Process G.R. Murthy, C. Senthilpari, P. Velraj Kumar and T.S. Lim	2580

Chapter 10: Communication, Optoelectronics and Optical Systems

Analysis, Selection and Control of Optimal Driving Current Combinations in Wavelength Switching for DBR Lasers H.W. Tseng, Y.H. Lee, C.Y. Lo, C.C. Huang, M.H. Chuang and Y.G. Jan	2593
An M-Z Interferometer Coupled with a Ring Resonator for Sensing Y.D. Zhang, R.D. Zhu, X.N. Zhang, K.Y. Wang, G. Li and P. Yuan	2598
A Three-Dimensional Position System Using Digital TDE Receiver and Cylindrical Array Antenna J. Mar, S.R. Wu, Y.T. Wang and K.C. Tsai	2603
Analysis and Signal Recovery of Modulated Wideband Converter with Gain Mismatch Y.H. Wang and J.Q. Zhang	2609
Behavioral Modeling and Design of Predistortion for Wireless Transmitters with Multi-Branch RF Power Amplifier W.S. Kang, J.G. Lim, K.Y. Lee and H.C. Ku	2615
Design and Implement of Multi-Antennas for High Data Rate Communication H.W. Tseng, Y.H. Lee, Y.W. Lee, C.Y. Lo, Y.G. Jan and M.H. Chuang	2622

Design of DDS-Like Clock Generator Using Bidirectional Integration	2627
H.C. Chen	
A Cooperative Relay Scheme Based on Constellation Expansion	2632
J.I. Park, Y.P. Lee, S.Y. Kim, G.I. Jee and S.H. Yoon	
Ergodic Channel Capacity of MIMO Transmission in Spatial Correlated-Fading	2637
J.I.Z. Chen, L.T. Yeh and C.W. Liou	
Estimation of OFDM Carrier Frequency Offset Robust to Offset Variation	2642
C.H. Yu, Y.P. Lee, S.Y. Kim, G.I. Jee and S.H. Yoon	
High Gain and Low Noise Single Balanced Wireless Receiver Front-End Circuit Design	2647
Z.Y. Huang, C.C. Huang, J.M. Lin and C.C. Hung	
Partition-Based Hybrid MIMO Decoding Schemes with Combined Depth- and Breath-First Search	2652
J.I. Park, Y.P. Lee and S.H. Yoon	
The Performance Comparison of Sub-1GHz Wireless Personal Area Monitoring Systems	2657
W.C. Lin, C.C. Lan, L.K. Lee, K.Y. Luo and W.Z. Hong	
A Cluster-Based Countermeasure against MAC Layer Attacks in IEEE 802.11 MANETs	2662
F. Shi, W.J. Liu, D.X. Jin and J.S. Song	
A Study of Bipolar Walsh-Hadamard Coding Method in Optical CDMA Networks	2667
C.T. Yen and W.B. Chen	
A Study of Modified Prime Codes Optical CDMA for Wired-Wireless System	2672
C.T. Yen and W.B. Chen	
Optimization Algorithm of the Repeaters Distribution by Square and Cellular Model	2677
S.C. Pang, H.Y. Wu, X.W. Sun and Y.J. Zhang	
A Tracking System with Location-Based Delivering for Reducing Short Message Transmissions	2682
Y.H. Yeh, Y.C. Lai, J.W. Lin, C.N. Lai and H.C. Weng	
Robust MVDR Estimation via Polynomial Rooting for MC-CDMA Carrier Frequency Offset	2687
I.J. Su and C.C. Huang	
An Incentive Mechanism Using Game Theory for Wireless Mesh Networks	2694
W.K. Lai, M.L. Weng, Y.C. Lin and C.S. Shieh	
Cell Planning for Base Station in Mobile Communication Using an Improved Genetic Algorithm	2699
H.J. Liao, C.H.R. Lin, K.Y. Tung, Y.C. Lin, C.F. Tsai and T. Yang	
Design of a LED Module with Special Constraint	2704
D. Shaw and Y.C. Huang	
Design of an Optical Mechanical System for High-Resolution Encoders	2711
Y.H. Fan, C.E. Chen, L.Y. Lou and C.Y. Chen	
Design of Precise Lightweight Mirror	2717
T. Vít, R. Melich, J. Václavík and V. Lédl	
Design of the Light-Emitting Diode Vehicle Projector Headlamp System without Shield	2723
C.C. Hsieh and Y.H. Li	
Development of a Light Guide Film with Optimal Design and Roll to Roll Microfabrication Technology	2729
M.W. Wang, W.C. Lin and M.H. Lee	
Dynamic Throughput Optimization in Wireless Multi-Hop Networks	2735
J.S. Liu	
Error Analysis of Ray's Light Path for Axis-Symmetrical Optical System by Using Skew Ray Tracing	2741
T.T. Liao, C.T. Chen, C. Kung and P.D. Lin	
Field Distortion Compensation for Galvanometric Scanning Machines	2746
C.S. Chen, W.K. Wang, C.L. Huang and C.W. Yeh	
Gateway Placement under the Consideration of the Starvation of TCP Flows in Wireless Mesh Networks	2751
C.G. Liu, C.H. Chiang and Y.W. Liao	
HARQ Performance Analysis in IEEE 802.16m System	2756
H.W. Tseng, Y.G. Jan, W.C. Lee, S.N. Lu, Y.H. Lee and M.H. Chuang	

High Efficient Color-Separation Backlight C.H. Lee and T.H. Huan	2761
High-Sensitivity Sensor Using Frequency Sweeping Generated Ringing Effect in Single-Mode Fiber-Loops Y.D. Zhang, Y. Wang, Y.L. Gai, X.N. Zhang and P. Yuan	2766
Interactive Design and Simulation for Luneberg Lenses S.K. Ueng and H. Muh	2771
The Effect of the Broken Edge on the Concentricity of the Micro-Polished Optical Fiber End-Face Y.C. Tsai, G.M. Huang, J.H. Chen and S.W. Chen	2778
A Field Emission Light Source Using Reflective Metal Groove Anode and Long Narrow Stripe Cathode C.C. Chang, Y.J. Pan and W.H. Tsai	2784
Trim Down Redundant Transmission in Data Synchronization C.H. Wen and R.C.H. Lin	2789
Time-Efficient Route Optimization in PMIPv6 D.X. Jin, F. Shi, J.S. Chin and J.S. Song	2794
Throughput Analysis for IEEE 802.11e Enhanced Distributed Channel Access Y.T. Lee	2799
The Yellow-Ring Measurement of White LED by the Reflective Lightspot Method (RLM) C.C. Yang, H.Y. Tsai, W.T. Hsiao and K.C. Huang	2805
The Telescope Primary Mirror Isostatic Mount Bonding Position Analysis M.Y. Hsu, W.C. Lin, C.Y. Chan, C.F. Ho, S.T. Chang and T.M. Huang	2812
The Optical Response of Trapezoidal Comb-Like Nanostructures Y.D. Zhang, J. Li, H.Y. Li and P. Yuan	2816
The Effect of the Different Core Layer on Polymer Asymmetric Bragg Couplers F.C. Hsu, C.Y. Liao, X.H. Yu, X.M. Lai and C.T. Ho	2821
The Convergence Rate on Distributed Network Utility Maximization in Wireless Mesh Networks Y. Chen, G. Gao, M. Liu and S. Wang	2826
The Characteristics of All-Optical Switching and Modulation in Phenoxy-Phthalocyanines Liquid Y.D. Zhang, C.B. Yao, H.T. Yin, C.Q. Yu, J. Li and P. Yuan	2830
Symmetric NAT Traversal Method for Session Initial Protocol (SIP) K.L. Chen, S.H. Hwang and C.Y. Yeh	2835
Simulation of Thermal-Optical Effects on a PMMA Fresnel Lens Used in Solar Concentrators Y.C. Chen and C.H. Su	2840
RSVP Extensions for Mobility Management in Heterogeneous WLAN/WiMAX Networks N.C. Wang, Y.K. Chiang and S.M. Wei	2845
Performance Analysis of Reactive FHCop-B in Nested Mobile Networks I.C. Chang, C.S. Lu and S.C. Wang	2850
Performance Analysis and Improvement on SIP-Based VoIP Server L.T. Shen, S.H. Hwang, C.J. Huang and C.Y. Yeh	2855
Partial Bit Strings Pruning Channel Assignment in Multi-Rate Multi-Channel Wireless Networks T.W. Kuo, C.H.R. Lin and Y.C. Lin	2860
Packet Loss Concealment Using Dual-Side Waveform Similarity Overlap-and-Add J.F. Yeh, M.D. Kuo and Z.H. Hsu	2867
Near-Infrared Electro-Optics Modulation Coding Technology Using the Aperture Module with the Changeable Stop D.C. Chen and J.Y. Su	2872
Multimode-Interference-Based Waveguide Crossing in Two-Dimensional Cubic Photonic Crystal Y.B. Lin, J.H. Cheng, R.S. Chen, T.C. Yu, J.F. Liu and H.B. Lin	2876
Multi-Colored LED Control System Implemented in Programmable SoC with Subset of DMX512 Specification F.H.F. Wu, J.H. Hsueh and J.S.R. Jang	2880

Microsphere Coupled Mach-Zehnder Interferometer for Biochemical Sensor Y.D. Zhang, J. Zhang, H. Tian and P. Yuan	2885
Measurement and Analysis of Loss for Long-Period Photonic Crystal Fiber Gratings J.S. Chiang, S.Y. Lin, C.M. Chen, N.H. Sun and W.F. Liu	2890
LED Color Mixing Mechanism Design C.C. Hung, C.C. Hsieh, Y.H. Li and C.C. Lin	2894
Confidential Enhancement with Multi-Code Keying Reconfiguration over TS/WH OCDMA Networks Y.T. Chang	2899
Distributed TXOP Allocation Scheme in IEEE 802.11e Wireless LANs S. Kim	2904
Measurement and Simulation of System Performance of Digital Broadcasting System H.W. Tseng, W. Chien, S.N. Lu, W.C. Lee, Y.G. Jan and Y.H. Lee	2908

Chapter 11: Methods and Algorithms for Processing and Analysis of Data

A Generalized Frame-Level FSBM FLSA Architecture L.C. Liu, J.C. Chien and Y.W. Hsu	2915
An Efficient Heuristic-Based Algorithm for Path Tracking Using Wireless Signals W.C. Lin, H.Y. Chang, Y.J. Huang, S.I. Chu, Y.C. Lin and T.Y. Yeh	2921
An Improvement to Tree-Structured Vector Quantization C.P. Chu, S.H. Hwang, S.C. Chang and C.Y. Yeh	2926
Application of Evolutionary Programming for Switch Strategy Decision of Distribution Systems with Load Variations M.S. Tsai and C.C. Chu	2930
Hydraulic System Fault Diagnosis Based on EMD and Improved PSO-Elman ANN Z.S. Dong, X.Y. Zhang and J.C. Zeng	2936
The Dynamic LMS for Line Echo Cancellation N.Y. Ku, S.H. Hwang, S.C. Chang and C.Y. Yeh	2941
Use of the Fuzzy-Based Taguchi Method for the Optimization Design of an Ultrathin Centrifugal Fan K.H. Hsien and S.C. Huang	2946
3D Angle Searching System with PSO for Face Recognition C.T. Hsieh, C.S. Hu and M.S. Shih	2950
3D Image Encryption Using Integral Imaging Scheme and MLCA Technology D.H. Kim, Y.R. Piao, S.J. Cho and S.T. Kim	2955
A Coded Digital Watermarking Recognition Using Neural Network Method C.T. Yen, I.J. Ding and Z.W. Lai	2961
A Forward Moving Method for Continuous Nearest Neighbor Queries J.H. Shen, Y.I. Chang, C.C. Wu and T.W. Liu	2965
A Memetic Algorithm for Mixed-Integer Optimization Problems Y.C. Lin	2970
A Multi-Criteria Image Quality Evaluation Scheme Y.C. Chang, C.M. Chang, L.H. Chen and T.J. Chan	2975
A New Algorithm Based Orthogonal Arrays for Design of Experiment on Nonlinear Functions H.C. Kuo, C.T. Lee and C.H. Lin	2980
A New Evolution Algorithm: Cultural Evolution Algorithm for Global Optimizations H.C. Kuo and C.H. Lin	2986
Novel 3-D Image Encryption Using Computational Integral Imaging and Linear-Complemented MLCA X.W. Li, D.H. Kim, S.J. Cho and S.T. Kim	2992
A Novel Region-Based Approach for Automatic Road Extraction from High Resolution Satellite Images Y.G. Byun	2998

A Real Time Hand Gesture Recognition System Based on DFT and SVM W.H. Chen, C.T. Hsieh and T.T. Liu	3004
An Algorithm of the Misconception Order T.W. Sheu, C.P. Tsai, J.W. Tzeng, T.L. Chen and M. Nagai	3010
An Efficient Genetic Encoding Scheme for Multiplierless Color Space Converter Design C.Y. Chen, C.H. Chen, C.H. Ma and P.Y. Wu	3015
An Efficient Neural Network Model with Taylor Series-Based Data Pre-Processing for Stock Price Forecast J.B. Li and C.H. Wu	3020
An Efficient Secret Image Sharing Scheme K.S. Wu and T.M. Lo	3025
An EigenMLLR-Like Eigen-FLS Approach for Speech Pattern Recognition I.J. Ding and C.T. Yen	3030
Automatic Facial Aging/Rejuvenating Synthesis Method C.T. Hsieh, C.S. Hu and C.W. Pan	3035
Automatic MIDI Genre Conversion H.C. Chang and C.K. Yang	3040
Chinese Semantic Word-Formation Analysis Using FKP-MCO Classifier Based on Layered and Weighted GED G.X. Gao, Z.W. Zhang and S.Y. Kang	3044
Building a Post-Search Academic Search Engine Based on a Serial of Clustering Methods L.C. Chen	3051
Building a Multi-Classifer System in a GA-Based Learning Environment Y.J. Kim and C.L. Hong	3056
Combined Probabilistic and Possibilistic Used to a Build Type-2 Fuzzy Clustering Algorithm Model L.T. Yao and K.S. Weng	3060
Data Mining Based Intelligent System for Voting Behavior Analysis D.K. Chen	3070
Detection of Content-Aware Image Resizing Using Seam Properties S.J. Ryu, H.Y. Lee and H.K. Lee	3074
Efficient Hardware Architecture for Kernel Fuzzy C-Means Algorithm C.M. Ou, W.J. Hwang and S.M. Yang	3079
Enhanced Artificial Intelligence Algorithm for Optimal Unit Commitment Problem C.H. Huang	3087
Estimation of Distribution Algorithms with Matrix Transpose in Bayesian Learning D.W. Kim, S. Ko and B.Y. Kang	3093
Exploring the Factor Effect of Learning Vector Quantization in Artificial Neural Networks Y.S. Shih, L.T. Tsai and C.C. Yang	3097
Fast Depth Generating Algorithm From Binocular Images F.H. Cheng and T.H. Kuo	3102
Flower Image Recognition Using Multi-Class SVM H.H. Lee, X.H. Li, K.W. Chung and K.S. Hong	3106
High Order Lambda Measure Based Choquet Integral Composition Forecasting Model H.C. Liu, W.S. Chen, B.C. Shia, C.C. Lee, S.L. Ou, Y.C. Ou and C.H. Su	3111
High Resolution Time-Frequency Analysis Base on Ricker Atom Matching Pursuit Decomposition W. Song, J.H. Zuo and P.C. Hu	3115
Human Body and Body Part Movement Analysis Using Gyroscope, Accelerometer and Compass C.Y. Yong, R. Sudirman, N.H. Mahmood and K.M. Chew	3120
Human Hand Movement Analysis Using Principle Component Analysis Classifier C.Y. Yong, R. Sudirman, N.H. Mahmood and K.M. Chew	3126
Image Segmentation Based on Poisson Equation Z.H. Zhou and H.Q. Zhong	3131
Imperialist Competitive Algorithms with Perturbed Moves for Global Optimization J.L. Lin, C.W. Cho and H.C. Chuan	3135

Unsupervised Mining of Visually and Temporally Consistent Shots for Sports Video Summarization	3140
Y. Dong, J.W. Zhang, J. Zhao, W. Liu and K. Tao	
Theoretical Approach to Reduced Q-Matrix for Cognition Diagnosis	3145
H.C. Liu	
Solve the Routing Optimization Problems with Foraging Game Theory	3149
C.T. Lin	
Significant Features Selection Resistant to Temporal Distortions	3154
T.T. Lu	
Robust Image Process of Corresponding Lines Using Moving-Window Method	3159
Z.R. Tsai and J.D. Hwang	
Reversible Data Hiding Exploiting Coefficients Histogram in Wavelet Transform Domain	3164
T.L. Yin and X.R. Luo	
Research on Cellular Artificial Bee Colony Algorithm and its Computational Experiments	3168
R.B. Xiao and Y.C. Wang	
Pareto Ensembles for Evolutionary Synthesis of Neurocontrollers in a 2D Maze-Based Video Game	3173
T.G. Tan, J. Teo, K.O. Chin and P. Anthony	
Palmprint Verification for Images Captured in Peg-Less Scenarios	3178
C.W. Lu, C.L. Lin, K.C. Fan, H.Y. Cheng and C.J. Juan	
Non-Uniform SURF Feature Point Detection and Matching	3184
Y.S. Huang, Z.H. Ou, H.H. Yu and H.W. Hsieh	
Moments and Parametrizing Construction for 3-Band Biorthogonal Scaling Coefficients	3189
L.H. Cui, Y. Zhou, B. Huang and J.J. Sun	
Macro Segmentation and Content Analysis of TV Broadcast Stream	3194
Y. Dong, L.Z. Wang, J.W. Zhang, H.L. Bai and J. Zhao	
Lane Detection and Predicting Algorithm Based on Randomized Hough Transform	3199
Z.H. Zhou and W. Zhang	
LemK_MSA: A Multiple Sequence Alignment Method with Sequence Vectorization Based on Lempel-Ziv	3203
G.L. Ji, J.C. Yao, Z.J. Yang and C.T. Ye	

Chapter 12: Computer and Information Technologies

A Web-Based Android Supervisory Control System	3211
S.C. Tung, W.J. Li and S.M. Huang	
A Web-Based Arduino Supervisory Control System	3216
S.C. Tung, W.J. Li, S.M. Huang and Y.T. Lai	
An Efficient Control System for Combating Cybersickness in the Elderly within a Virtual Store	3221
C.L. Liu and S.T. Uang	
Design and Realization of Smart Objects-Search System Based on RFID	3226
L.M. Xia, J.D. Zhang and J.Z. Wu	
Hardware/Software Co-Design of 2D-to-3D Video Conversion on FPGA	3230
T. Schumann, H. Krauß, Y.K. Lai and Y.F. Lai	
Study on Communication Protocol Application in Smart Grid	3235
Y.K. Ke, P.H. Huang, C.Y. Hsu and B.Y. Huang	
A Design of Smart Dressing System	3240
Y.T. Kao	
A Flexible and Scalable Cooperative Surveillance Technique Using Integrated Ontology Reasoning	3246
P.S. Park and S.M. Yang	
A Functional Test Bed for Producing Virtual Human's Human-Like Movement Based on Limited Perception	3251
C.H. Han, W.I. Kim and M.H. Oh	
A Modified Least Significant Bit Embedding with Error Correction	3256
H.Y. Liang, C.H. Cheng, C.Y. Yang and K.F. Zhang	

A New Front-End Anonymity and Back-End Real-Name Mechanism in e-Commerce Y.C. Chiu and W.B. Horng	3260
A Novel Optimal Routing Strategy for Internet of Things' Machine-to-Machine Network under Time Constraint Y.C. Chou	3265
A Preliminary Study on Non-Intrusive User Authentication Method Using Smartphone Sensors C.C. Lin, C.C. Chang, D.R. Liang and C.H. Yang	3270
A Proposal for a Schema for ARP Spoofing Protection J.C. Lin, M.J. Koo and C.S. Wang	3275
A Security and Efficiency of Authenticated Key Exchange Protocol for Wireless Mobile Ad Hoc Networks E.H. Lu, H.K.C. Chang, S.H. Liaw and P.C. Su	3280
A Study of Cloud Computing Based Intelligent Scheduling System for Manufacturing Quality C.L. Huang and C.C. Huang	3285
A Term Matching Strategy for Item-Banks Integration P.J. Chuang, M.C. Chiang and C.S. Yang	3290
Neighbor-Index Method for Continuous Window Queries over Wireless Data Broadcast J.H. Shen, C.T. Lu and M.S. Jian	3295
A Uniform and Coherent Mashup Technique Based on the OSGi Framework K.M. Lee, W.G. Teng, J.L. Chu, Y.T. Lin and T.W. Hou	3300
An Adaptively-Guiding Web-Based E-Learning System Based on Competency-Based Learning Theory W.C. Hsu and C.H. Li	3305
An Annotation Watermarking Approach to Image Tagging for Relevant Information Retrieval J.H. Wang, J.S. Syu, C.M. Liu and Y.L. Chen	3310
An Efficient Game Level Generation in Web-Based Serious Game J.T. Chen, S.S. Hung and D.C. Tsaih	3315
An Efficient Partitioning for Object-Relational Data Warehouses J.Y.C. Liu, C.W. Wang and C.Y. Chan	3320
An Experimental Platform for Cross-Language Document Retrieval L.Y. Wang, D.F. Wong and L.S. Chao	3325
An Implementation Model of RFID Information Security and Privacy C.Y. Chen and J.F. Tu	3330
An Innovative but Low-Cost E-Payment Mechanism and its Extension to E-Ticketing and E-Identity Document Applications V.K.Y. Chan	3335
Analysis and Design of Semantic Web Services Using MDA and SBC Structure S.S. Jhan, C.A. Teng and S.H. Yeh	3340
Analysis of Convective-Radiative Fins by Using Hybrid Spline Difference Method C.C. Wang, W.J. Liao and L.P. Chao	3345
Analytic Network Process Decision-Making to Downloadable Content System H.Z. Chen and J.F. Huang	3352
Annotation System for the Construction of Synchronous Grammar Tree Alignment Relationships F. Oliveira, D.F. Wong, L.S. Chao and F. Sun	3357
Classification of Photovoltaic Research Papers by Using Text-Mining Techniques H.S. Lee, H.G. Song and H.S. Lee	3362
Cloud Based Evolution Algorithm with Feedback Control for Emergency Logistic M.S. Jian, F.J. Jhan, H.C. Chang, T.Y. Chou and J.H. Shen	3370
Cluster Search Engine Results with Crowd Intelligence C.H. Tseng, F.C. Yang, Y.P. Tseng and Y.Y. Chang	3375
Cryptanalysis and Improvement of a Unique Batch Authentication Protocol for Vehicle-to-Grid Communications H.R. Tseng	3380

Defend a System against Keyloggers with a Privilege-Limited Account C.W. Hung, F.H. Hsu, S.J. Chen, Y.L. Hwang, C.K. Tso and L.P. Hsu	3385
Design and Implementation for the Secure ID Management System Based on Virtualization D.W. Jo and M.H. Kim	3390
Design and Implementation of a Low-Cost Scalar Multiplier-on-Chip for Elliptic Curve Cryptosystem W.T. Huang, C.K. Wang, G.M. Sung and C.C. Tuan	3395
Designing and Realizing of UAV Simulation System Y. Wu, M.S. Wu, J.D. Zhang and G.Q. Shi	3401
Efficient Book Recommendation System Based on a MapReduce Model C.S. Lim, J.H. Shin and S.J. Lee	3405
Enhancement of Consistency of UML Diagrams by Cross Checking Rules I.Y. Ha and C.G. Kim	3409
Expansion-Free Grayscale Image Sharing Using Meaningful Share Images K.P. Wang, C.L. Liu and D.C. Lou	3413
Exploiting Mobile Devices to Assist Identification System of Photos for Social Relationship X.M. Huang, K.Y. Kuo and Y. Chiou	3418
Full Multiplexers Implementation of Dual Basis Multiplier over GF(2^m) H.W. Chang, C.W. Chiou, W.Y. Liang and J.H. Wang	3423
GPU Computation for Online Realtime Multi-Pattern Matching Y.H. Huang, R.C.H. Lin, Y.C. Lin and C.Y. Lin	3428
How to Enhance MIFARE System Security in the Current Crypto-1 Broken Status Y.C. Chiu and W.B. Horng	3433
Implementation of Internet Audio Transmission System via Clock Correction J.S. Sheu, H.N. Shou, W.J. Lin and W.C. Chung	3438
Improved on Date Attachable Electronic Cash J.W. Lo, H.M. Lu, T.H. Sun and M.S. Hwang	3444
iTagger: Part-of-Speech Tagging Based on SBCB Learning Algorithm X.D. Zeng, L.S. Chao, D.F. Wong and L.Y. He	3449
JokerBot – An Android-Based Botnet R.M. Jiang, J.S. Jhang, F.H. Hsu, Y.L. Hwang, P.W. Huang and Y.H. Sheu	3454
Web-Base Virtual Collaboration in E-Learning System M. Kim and C.L. Hong	3459
Voice Communication Network Quality of Service Estimation and Forecast Based on Cloud Model Y. Jiang, X. Wang and F. Lin	3463
Visualization of Nanomanipulation Using an Interactive Virtual Environment C.T. Chen, S.Y. Chen, C.H. Liao and S.C. Zeng	3468
Virtual Prototype Design and Test-Simplifying the CAD/Analysis Interface Q. Li and C.A. Rubin	3473
Video Query Using Temporal Signature and Similarity Matching S.W. Lo and F.P. Lin	3477
Video Quality Adjustment Model Supporting Mobility for Seamless Multimedia Service Delivery D.J. Suh and S.J. Chang	3482
Tile-Based Panoramic View in Mobile Devices K.L. Tan, C.K. Lim and A.Z. Talib	3487
Three Dimensional Vision Conversion Based on Cloud Computing Y.C. Fan, Y.F. Chiang and C.M. Lee	3492
Shoulder-Surfing Resistant Smartphone Authentication Scheme Using Virtual Joystick S.W. Kim, H.Y. Yi, G.I. Ma and J.H. Yi	3497
Security of Cloud Computing Lightweight Authentication Protocol S.C. Wang, W.P. Liao, K.Q. Yan, S.S. Wang and S.H. Tsai	3502
Research on Sequence Query Processing Techniques over Data Streams E.C.H. Lin	3507
Research on Domain Ontology-Based Concept Similarity Calculation W.J. Li, S.S. Shi and S. Liu	3512

Reliable Detection of Histogram Shift-Based Steganography Using Payload Invariant Features	
C.L. Liu and H.H. Liu	3517
Proven Security and Efficiency of Gap Diffie-Hellman Group Blind Signature in E-Commerce	
E.H. Lu, H.K.C. Chang, S.H. Liaw and P.C. Su	3522
Performance Evaluation of a Hadoop-Based Secure Cloud Platform	
C.H.R. Lin, H.J. Liao, K.Y. Tung, Y.C. Lin and S.L. Cheng	3527
Multi-Clouds Framework for Enterprise Application Integration with Intelligent Agents	
S.H. Wang and D.J. Chen	3532
Management of Abstract Algebra Concepts Based on Knowledge Structure	
C.C. Chen, Y.H. Lin and J.M. Yih	3537
LSO-AdaBoost Based Face Detection for IP-CAM Video	
C.J. Chang and S.L. Hwang	3543
L-System Controlled Music Expression through Visual Language Framework	
C.K. Lim and A.Z. Talib	3549
Computer Assisted Language Learning and Gray Model for Promoting Phonics Learning in Continuing Education	
H.Y. Liang and C.C. Yang	3554
E-Learning Interface Management	
K.T. Liu, B.H. Ruan and R.K. Liu	3559
Temporal Navigation in a Session in a Mobile Distance Learning System	
J.H. Lee	3563
Learning for Shadow Puppet's Action Control Inverse Kinematics Method	
K.K. Fan and P.W. Hsiao	3569

Chapter 13: Innovation Management, Product Design and Engineering Management

An Illustration of Low-Cost and Intuitive Innovation Challenging Long-Standing Industrial Standards and Practices	
V.K.Y. Chan	3575
Analysis of Professional Competence Required by the Wind Energy Industry Practitioners	
W.J. Zeng, C.S. Cheng, S.H. Huang, C.F. Lin and P.C. Chen	3580
Application of Systematic Innovative Method to Improve the Structure of Magnetorheological Damper	
C.P. Chang, Y.H. Lin and Y.C. Chen	3586
Dodge-Romig LTPD Single Sampling Plan under Quality Investment and Inspection Error	
C.H. Chen	3591
Identifying Constraints Regarding Power Usage Effectiveness for Data Centers Engaging in Demand Response Programs	
C.J. Tang and M.R. Dai	3597
Long-Term Unit Commitment Solution Based on Load Pattern	
T.K. Lu, H.H. Hsu, F.F. Chen and M.F. Kao	3604
Multi-Dimensional Assessment for Residential Lighting Demand Side Management: A Proposed Framework	
Y. Tanoto, M. Santoso and E. Hosea	3612
A Decision Support System for the Operation of Vending Machine Supply Chains with Product Substitution and Varying Vehicle Speed	
Y.B. Park and S.J. Yoon	3617
A Discussion on the Impact of the Integration and Splitting Models on the Operational Efficiency of Medical Centers in Taiwan	
C.K. Wei	3622
A Genetic Algorithm for Improving Efficiency of PERT	
J.J. Lin	3627
A Study of Design Demand of Applying Quality Function Deployment in Plastic Folding Chairs	
C.T. Chen	3632

A Systematic Approach to Quality Function Deployment with Extension Method C.T. Wu and N.T. Liu	3637
An Enterprise Architecture Approach Based on DoDAF F.S. Jin, H. Zhang and Y. Wang	3642
Application of PLS-SEM to Assess the Influence of Construction Resources on Cost Overrun I.A. Rahman, A.H. Memon, N.H. Abdullah and A.A.A. Azis	3649
Building a Maturity Model of Information Security Governance for Technological Colleges and Universities in Taiwan C.N. Hung, M.D. Hwang and Y.C. Liu	3657
Construction of System Dynamics Model on Service Strategy and Resource Management T.S. Lan, C.H. Kuo and C.C. Liang	3662
Efficiency Improvement for Multi Depot Vehicle Routing: A Case Study in Cash Distribution P. Boonsam, N. Suthikarnnarunai and W. Rattanawong	3667
Evaluating and Benchmarking Productive Performance of Shipping Companies C.T. Hung	3675
Improving Operability of SmartUAV in Navigable Airspace of Korea D.H. Kim, W.Y. Kim and J.W. Kim	3679
Intelligent Decision-Making on Modular Products Using Fuzzy Algorithms H.C. Tsai	3686
The Study on the Functional Element Representations for Bicycles with Creative Characteristics N.T. Liu and C.T. Wu	3691
Supply Chain Pricing Strategy for Short-Lived Ramp-Type Demand Models Y.N. Lin	3696
Research on Optimized Problem-Solving Solutions Selection of the Production Process C.K. Ke	3702
Optimizing Bi-Objective Imperfect Preventive Maintenance Model for Multi-Component System Using a Proposed Improved PSO Algorithm C.H. Wang and S.W. Tsai	3707
Multiprocessor Flow Shop Scheduling Problem with Common due Window R.H. Huang, T.H. Yu and C.L. Yang	3712
Measuring the Capability for One Process with Spherical Tolerance L.C. Sheu, C.H. Yeh, C.H. Yen and C.H. Chang	3717