



2010 International Symposium on Computer, Communication,  
Control and Automation

**Program Schedule**

May 5	May 6	May 7
08:30~17:30	08:30~17:30	08:30~11:30
<b>Registration</b>	<b>Registration</b>	<b>Registration</b>
	09:30~10:30	09:10~10:30
	<b>Plenary Speech III</b>	<b>Technical Session 6</b>
10:30~11:00	10:30~11:00	10:30~10:50
<b>Opening Ceremony</b>	<b>Tea Break</b>	<b>Tea Break</b>
11:00~12:00	11:00~12:20	10:50~12:10
<b>Plenary Speech I</b>	<b>Technical Session 3</b>	<b>Technical Session 7</b>
12:00~13:30	12:20~13:30	12:10~14:30
<b>Lunch</b>	<b>Lunch</b>	<b>Farewell Party</b>
13:30~14:50	13:30~14:50	<b>Plenary Speech I:</b> <b>Dr. Guanrong Chen</b> <b>Plenary Speech II:</b> <b>Dr. Tsu-Tian Lee</b> <b>Plenary Speech III :</b> <b>Dr. Jong-Hwan Kim</b> <b>Plenary Speech IV:</b> <b>Dr. Chin-Chen Chang</b>
<b>Technical Session 1</b>	<b>Technical Session 4</b>	
14:50~15:10	14:50~15:10	
<b>Tea Break</b>	<b>Tea Break</b>	
15:10~16:10	15:10~16:10	
<b>Plenary Speech II</b>	<b>Plenary Speech IV</b>	
16:10~17:30	16:10~17:30	
<b>Technical Session 2</b>	<b>Technical Session 5</b>	
18:00~20:00	18:00~20:00	
<b>Welcome Reception</b>	<b>Banquet</b>	

 International Conference Hall (Tri-Ethic Building 9F)

 Library 6F、7F

 Mechanical and Electrical Building 9F

 Gymnasium

## Schedule on May 5, 2010

10:30 11:00	<b>Opening Ceremony</b>				
11:00 12:00	<b>Plenary Speech I Dr. Guanrong Chen</b> Flocking Control of Mobile Multi-Agents Over Complex Networks				
12:00 13:30	<b>Lunch</b>				
13:30	<b>WA1</b> Communication and Networks  Beongku An	<b>WA2</b> Neural Network Based Control  Jui-Sheng Lin	<b>WA3</b> Information Management I  Sheng-Wen Hsieh	<b>WA4</b> Multimedia and Security  Jui-Feng Yeh Ping-Cheng Lin	<b>WA5</b> Flight Control, Simulation and Identification  Chien-Chun Kung Ho-Nien Shou
	Session Room 571	Session Room 572	Session Room 573	Session Room 574	Session Room 575
14:50	<b>WA6</b> Control Systems and Applications I  Men-Shen Tsai Chih-Jer Lin	<b>WA7</b> Robotic Control and Sensors  Kuo-Hsien Hsia	<b>WA8</b> Modeling and Algorithms  Meei-Ling Hung	<b>WA9</b> Embedded System and Applications  Yu-Chi Pu	
	Session Room 576	Session Room 577	Session Room 561	Session Room 562	
14:50 15:10	<b>Tea Break</b>				
15:10 16:10	<b>Plenary Speech II Dr. Tsu-Tian Lee</b> Intelligent Transportation Systems in Taiwan				
16:10	<b>WB1</b> Power Systems and Control  Yi-Hsuan Hung	<b>WB2</b> Organizational Learning and Human Resource Control  Chung-Lin Huang	<b>WB3</b> Information Management II  Sheng-Wen Hsieh	<b>WB4</b> Network Management and Communication Systems  Young-Long Chen	<b>WB5</b> Multimedia Signal Processing and Communications  Der-Jiunn Deng Jiann-Liang Chen
	Session Room 571	Session Room 572	Session Room 573	Session Room 574	Session Room 575
17:30	<b>WB6</b> Solar Cells and Novel Devices  Chih-Sheng Yang	<b>WB7</b> Machine Tool Information Service  Yu-Chuan Su	<b>WB8</b> Mechatronic System & Optimization, Stability  Chong-Ching Chang David T.W. Lin	<b>WB9</b> Control Systems and Applications II  Chao-Lin Kuo	
	Session Room 576	Session Room 577	Session Room 561	Session Room 562	
18:00 20:00	<b>Welcome Reception</b>				

## Schedule on May 6, 2010

09:30	<b>Plenary Speech III Dr. Jong-Hwan Kim</b>				
10:30	Intelligence Technology for Cyber-Physical Robot System				
10:30	<b>Tea Break</b>				
11:00	<b>TA1</b> Nonlinear System Analysis and Control  Her-Terng Yau	<b>TA2</b> Optimization and System Technologic  Shih-Hsu Huang	<b>TA3</b> Intelligence Control  Tzoo-Hseng S. Li Yi-Pin Kuo	<b>TA4</b> Learning and Education  Chien-Yu, Lin	<b>TA5</b> Mechatronics System Simulation and Performance Analysis  Cai-Wan Chang-Jian
12:20	Session Room 572	Session Room 573	Session Room 574	Session Room 575	Session Room 576
12:20	<b>Lunch</b>				
13:30	<b>TB1</b> Image Processing I  Ioannis Manousakas	<b>TB2</b> System Control Computing  Wen-Tsai Sung Chiu-Keng Lai	<b>TB3</b> Electrical Engineering System Analysis and Simulation  Meng-Hui Wang Neng-Sheng Pai	<b>TB4</b> Numerical Simulation in Micro-Nano Technology  Huei-Chu Weng	
14:50	Session Room 572	Session Room 573	Session Room 574	Session Room 575	
14:50	<b>Tea Break</b>				
15:10	<b>Plenary Speech IV Dr. Chin-Chen Chang</b>				
16:10	Image Steganography Using Magic Matrix				
16:10	<b>TC1</b> Image Processing II  Chen-Chung Liu	<b>TC2</b> Technology Knowledge Innovation  Chien-Hung Liu	<b>TC3</b> Data Mining  Wei-Chang Du Mahnoosh Kholghi	<b>TC4</b> Innovative Neural Networks and Fuzzy Computing  Chun-Jung Chen	<b>TC5</b> Computer Network  Chen-Da Tsai
	Session Room 572	Session Room 573	Session Room 574	Session Room 575	Session Room 576
17:30	<b>TC6</b> Embedded System and Signal Processing  Chung-Hsin Liu Yi Shing Huang				
	Session Room 577				
18:00	<b>Banquet</b>				
20:00					

## Schedule on May 7, 2010

09:10	<b>FA1</b> Numerical Analysis  Pey-Shey Wu	<b>FA2</b> Diffractive Optical Elements Applications & Communication Technology Sheng-Hsiung Chang	<b>FA3</b> Power Application  Shun-Jih Wang	<b>FA4</b> Control Application I  Kuo-Kuang Chen	<b>FA5</b> Nonlinear System & Optimization  Cheng-Chi Wang
	Session Room 572	Session Room 573	Session Room 574	Session Room 575	Session Room 576
10:30	<b>FA6</b> Measurement and Control Application  Yi-Ming Tsao				
	Session Room 577				
10:30 10:50	<b>Tea Break</b>				
10:50	<b>FB1</b> AI and Control Applications  Jian Liung Chen Chia-Hung Lin	<b>FB2</b> Signal Processing and Control  Ying-Che Kuo Her-Terng Yau	<b>FB3</b> Fuzzy applications on decision making  He-Yau Kang Chun-Mei Lai	<b>FB4</b> Control Application II  Yi-Yu Lu	<b>FB5</b> Modeling and Numerical Simulation  Yen-Liang Yeh
	Session Room 571	Session Room 572	Session Room 573	Session Room 574	Session Room 575
12:00	<b>FB6</b> Smart Lighting  Feng-Lin Jenq	<b>FB7</b> Intelligent Methods for Signal Processing and Control  Tsung-Ying Sun			
	Session Room 576	Session Room 577			
12:10 14:30	<b>Farewell Party</b>				

# IEEE 3CA 2010 Session List

## **Session WA1: Communication and Networks**

**Session Chair: Beongku An**

**Session Room: 571**

1. A Cooperative Routing in Mobile Ad-hoc Wireless Sensor Networks with Rayleigh Fading Environments  
Beongku An and Tran Trung Duy
2. Comparison of Time Domain and Frequency Domain Equalization for HSDPA Channel  
Bushra Tasadduq, Aisha Haroon, Hira Imtiaz, and Adeel Razi
3. The Development of Microsystems Device Based on Wireless Sensor Network  
Y.-J. Pan and H.-T. Nian
4. The New Design for Wireless Sensor Networks at 3Dspace  
Nima Attarzadeh, Seyed Javad Mirabedini, and Ali Harounabadi
5. Study of Using Interleaved Mapping with Non-uniform M-QAM for Mobile Video Transmission  
Songchar Jiang, Ming-Sheng Lui, and Sin-Ruei Ho
6. A Forwarding Mechanism for Processing Two Categories of Packets in Wireless Sensor Networks  
Yao-Pin Tsai, Ming-Che Chung, and Ru-Sheng Liu

## **Session WA2: Neural Network Based Control**

**Session Chair: Jui-Sheng Lin**

**Session Room: 572**

1. Adaptive Control and Synchronization of Uncertain Unified Chaotic System by Cellular Neural Networks  
Chao-Jung Cheng and Jung-Ruen Tsai
2. Based on Sliding mode Control to Synchronize of Switched Fractional Lorenz Systems  
Jui-Sheng Lin, Jun-Juh Yan, Yi-Sung Yang, and Teh-Lu Liao
3. Design of Active Queue Management Algorithms for TCP Networks: Nonlinear Output Feedback Approach  
Meei-Ling Hung, Jun-Juh Yan, Cheng-Fang Huang, and Teh-Lu Liao

4. Switching Signal Design for Stability of Switched Systems with Time-Varying Delay  
Chang-Hua Lien, Ker-Wei Yu, Hao-Chin Chang, and Yeong-Jay Chung
5. Time-driven Switching Synchronization of Modified Chua's Circuit Systems via Sliding Mode Control  
Zhang-Lin Wan, Lan-Yuen Guo, Teh-Lu Liao, and Yi-You Hou
6. Human Face Recognition System Using Modified PCA Algorithm and ARM Platform  
Chin-Shu Chang, Teh-Lu Liao, Po-Yun Hsu, and Kuo-Kuang Chen

### **Session WA3: Information Management I**

**Session Chair: Sheng-Wen Hsieh**

**Session Room: 573**

1. The Best Route Appointing Analysis of the Logistics Center's Transportation Planning Model  
Chun-Chi Lin, Chyun-Chyi Chen, and Po-Chiang Tsai
2. Implementation of the Distributed Hierarchical Security Operation Center using Mobile Agent Group  
Jung-Shian Li and Che-Jen Hsieh
3. A Kerberos-based Single Sign-On System for VoIP SIP Servers and Clients with a Terminal Mobility Capability  
Jung-Shian Li, Chuan-Kai Kao, and Shiou-Jing Lin
4. Factors Affecting Learners' Knowledge Sharing Intentions in Web-based Learning  
Hsin-Huan Wu and Chun-Wang Wei
5. The Relationships among Service Quality, Customer Satisfaction, and Repurchase Intention in SMS  
Yu-Wen Chiu, Tsung-Mei Chao, and Ya-Yen Chou

### **Session WA4: Multimedia and Security**

**Session Chairs: Jui-Feng Yeh / Ping-Cheng Lin**

**Session Room: 574**

1. An Efficient Fast Handoff Scheme in Hierarchical Mobile IPv6 for NEMO  
Long-Sheng Li, Yao-Hui Tsai, and Ping-Cheng Lin
2. An Efficient Multicast Scheme in the Nested NEMO  
Shr-Shiuan Tzeng, Hsiao-Chen Kuo, Long-Sheng Li, and Yong-Yu Yang

3. An Efficient SIP Scheme for Network Mobility  
Long-Sheng Li, Ching-Lung Cheng, and Wen-Jiunn Hsiao
4. The Study of Video Conference Through Firewall Security  
Chung-Hsin Liu and Wu-Fan Hsu
5. Combining Independent Component Analysis and Support Vector Machine for Identifying Fault Quality Variables in the Multivariate Process  
Chi-Jie Lu, Yuehjen E. Shao, and Yu-Chiun Wang

### **Session WA5: Flight Control, Simulation and Identification**

**Session Chairs: Chien-Chun Kung / Ho-Nien Shou**

**Session Room: 575**

1. Human Visual-Vestibular Based (HVVB) Adaptive Washout Filter Design for VR-based Motion Simulator  
Chin-I Huang
2. Flying Quality Assessment with EKF-derived Aerodynamic Derivatives from Weather-hazardous FDR Data  
Pu-Chung Hsu, Ming-Jui Chiang, and Wei-Chih Yang
3. Implement Three-Dimensional Pursuit Guidance Law with Feedback Linearization Control Method  
Chien-Chun Kung, Feng-Lung Chiang, and Chi-Yu Wu
4. The Input Estimator Design and Application in Estimating Atmospheric Disturbances for Aircraft Systems  
Yung-Lung Lee
5. Micro-Satellite Attitude Determination: Using Kalman Filtering of Magnetometer Data Approach  
Ho-Nien Shou and Chen-Tsung Lin

### **Session WA6: Control Systems and Applications I**

**Session Chairs: Men-Shen Tsai / Chih-Jer Lin**

**Session Room: 576**

1. Embedded Vision-based Nighttime Driver Assistance System  
Yen-Lin Chen and Chuan-Yen Chiang

2. A Study of Bicycle Dynamics via System Identification  
Chih-Keng Chen and Trung-Kien Dao
3. Closed-Die Compression Molding for Optical Lenses  
Cheng-Hsien Wu and Chun-Yu Liu
4. A Study of Wireless Torque Sensing Based on SAW Sensors  
Chih-Jer Lin, Chih-Wei Hung, and Hai-Ping Lin
5. A Novel Feature Extraction Method for the Development of Nonintrusive Load Monitoring System based on BP-ANN  
Yu-Hsiu Lin and Men-Shen Tsai

### **Session WA7: Robotic Control and Sensors**

**Session Chair: Kuo-Hsien Hsia**

**Session Room: 577**

1. Height Estimation via Stereo Vision System for Unmanned Helicopter Autonomous Landing  
Kuo-Hsien Hsia, Shao-Fan Lien, and Juhng-Perng Su
2. Obstacle Avoidance and Wireless Network Surveillance of a Weapon Robot  
Chun-Chieh Wang, Chyun-Luen Lin, Kuo-Hsien Hsia, and Yi-Chun Hsieh
3. Formation Exchange of the Multiple Mobile Robot System  
Sheng-Ven Shiau, Kuo-Lan Su, Chun-Chieh Wang, and Jr-Hung Guo
4. Design of an Alpha-Beta Filter by Combining Fuzzy Logic with Evolutionary Methods  
Ting-En Lee, Juhng-Perng Su, Kuo-Hsien Hsia, Ker-Wei Yu, and Chun-Chieh Wang
5. Improved Particle Swarm Optimization Approach of PID Controller Design for Machine Tool Positioning  
Ming-You Ma, Jen-Ai Chao, and Yi-Cheng Huang

### **Session WA8: Modeling and Algorithms**

**Session Chair: Meei-Ling Hung**

**Session Room: 561**

1. A Propositional Calculus Formal Deductive System SUBL  
Minxia Luo and Chunmei Ding
2. Opinion Dynamics under Different Agents' Personality  
Lei Yang and Peng Xi

3. Research on MAS Behavior and Paradigm Learning-based Evolutionary Method and Its Application in E-commerce  
Weijin Jiang and Lina Yao
4. Optimized K-means Algorithm and Application in CRM System  
Xiaoping Qin, Shijue Zheng , Tingting He , Ming Zou, and Ying Huang

### **Session WA9: Embedded System and Applications**

**Session Chair: Yu-Chi Pu**

**Session Room: 562**

1. Image Focusing System based on FPGA  
Miaofen Zhu, Guojin Chen, Wanqiang Wang, and Yongning Li
2. Research on New Data Mining Method Based on Hybrid Genetic Algorithm  
Lianmei Zhang and Xingjun Jiang
3. Research on a Certificate-based Authentication for Mobile ad Hoc Networks  
Xiaodong Mao, Dahu Wang, Tong Zhang, and Keming Huang
4. Dental Plaque Quantification using Mean-shift-based Image Segmentation  
Jiayin Kang and Zhicheng Ji

### **Session WB1: Power Systems and Control**

**Session Chair: Yi-Hsuan Hung**

**Session Room: 571**

1. Wind Turbine Control Monitor System Simulation and Validation  
Ho-Ling Fu and Wei-Chiang Chang
2. Development of a Hardware in-the-Loop Platform for Plug-in Hybrid Electric Vehicles  
Yi-Hsuan Hung, Chien-Hsun Wu, Shih-Ming Lo, Bing-Ren Chen, E-In Wu, and Pin-Yung Chen
3. Magnetic Suppression of Cylindrical MHD Couette Flow Vortex  
C.-L. Chang, C.-Y. Tseng, S.-L. Hung, and J.C. Leong
4. Optimal Designs and Experimental Verification for a Hybrid Energy Storage System  
Chien-Hsun Wu, Yi-Hsien Chiang, Wu-Yang Sean, Shih-Ming Lo, Jia-Cheng Ke, and Yi-Hsuan Hung

5. Analysis and Research Maximum Power Point Tracking of Photovoltaic Array  
Chang-Chun Wang, Ming-Chuan Wu, Kuang-Jang Lin, and Chii-Ruey Lin
6. Investigation of 2004 Ferrari Formula One Race Car Wing Effects  
Y.-N. Wang, C.-Y. Tseng, Y.-L. Huang, and J.C. Leong

## **Session WB2: Organizational Learning and Human Resource Control**

**Session Chair: Chung-Lin Huang**

**Session Room: 572**

1. An Effective and Improved Profiling Instrument For success in Intelligent Organization  
Chung-Lin Huang, Chiung-Ting Huang, and Yueng-Ho Ho
2. How to Apply the Cybernetic Systems Thinking in the Human Resource Control for Manufacturing Industry?  
Chung-Lin Huang, Chung-Chi Huang, Yeong-Ho Ho, and Hsiou-Man Liu
3. Quality Improvement of On-Job-Training: Using DEA Method  
Chien-Che Huang, Menz-Ru Huang, Shu-Hsuan Chang, and Ruei-Guo Chung
4. Team Implicit Coordination in Manufactory Industry: Assessing the Mediating Role of Empowering Leadership and Team Efficacy  
Cheng-Hung Chen, Yueng-Ho Ho, and Li-Ju Chan
5. Performance and Vulnerability of Non-Profit Organization in Taiwan– Sampling in Private Universities  
Hung-Chih Wang and Y. Angela Liu

## **Session WB3: Information Management II**

**Session Chair: Sheng-Wen Hsieh**

**Session Room: 573**

1. How Do Team Factors Affect Technology Adoption Decision?  
Wenjywan Su and Hsiu-Ying Lin
2. An Indexing Strategy without Recording Temporal Relationships for Video Database Systems  
Ye-In Chang, Lee-wen Huan, and You-Cheng Chen
3. Measuring of Value at Risk (VAR) on Emerging Stock Markets by Neural Networks Method  
Cheng-Te Chen and Chin-Shan Hsieh

4. An Ontology-Supported Information Agent Shell for Ubiquitous Services  
Sheng-Yuan Yang
5. An Efficient Truthful Mechanism for the Ticket Booking Scheme of NBA All-Star Event Championship  
Sajal Mukhopadhyay and D.Ghosh, Pramod Mane
6. The Marketing Constructs of Internet Auction Sellers  
Ruilin Lin, Jingchen Xie, Yoau-Chau Jeng, and Fang-Chao Zou

#### **Session WB4: Network Management and Communication Systems**

**Session Chair: Young-Long Chen**

**Session Room: 574**

1. GA-based Pilot-aided Channel Estimation without Interpolation in OFDM Systems  
Shu-Hong Lee and Ho-Lung Hung
2. Electromagnetism-like Method based Blind Multiuser Detection for MC-CDMA Interference Suppression over Multipath Fading Channel  
Chuen-Yih Tsai, Ho-Lung Hung, and Shu-Hong Lee
3. An Unified Architecture of All Transforms for H.264/AVC Codec  
Po-Hung Chen, Hung-Ming Chen, Mon-Chou Shie, Jun-Cheng Chen, and Jia-Ming Cha
4. E-Business Strategy for Supply Chain Integration: The Balanced Scorecard Perspectives  
Kuo-Pin Chang and Gary Graham
5. Energy Efficiency of a Chain-Based Scheme with Intra-Grid in Wireless Sensor Networks  
Young-Long Chen, Jia-Sheng Lin, Yung-Fa Huang, Fu-Kai Cheung, and Jen-Yung Lin

#### **Session WB5: Multimedia Signal Processing and Communications**

**Session Chairs: Der-Jiunn Deng / Jiann-Liang Chen**

**Session Room: 575**

1. Reliable Transmission Mechanism for Safety-critical Information in Vehicular Wireless Networks  
Naveen Chilamkurti, Chih-Heng Ke, Jong Hyuk Park, Ming-Fong Tsai, and Po-Chun Kang
2. Adaptive Forward Error Correction with Cognitive Technology Mechanism for Video Streaming over Wireless Networks  
Hsiung-Yu Huang, Tzu-Chi Huang, Naveen Chilamkurti, Rung-Shiang Cheng, and Ce-Kuen Shieh

3. Implementation of WAVE/DSRC Devices for Vehicular Communications  
Kai-Yun Ho, Po-Chun Kang, Chung-Hsien Hsu, and Ching-Hai Lin
4. Dual-Mode Access Scheme for Solving Asymmetric Link Phenomenon in IEEE WLAN  
Hao-Ming Liang, Wei-Cang Huang, Ce-Kuen Shieh, and Wen-Shyang Hwang
5. Analytical Approach for Performance Evaluation of Pricing Incentives Based Call Admission Control in Cellular Network  
Chatkwan Pongmala and Chaichachet Saivichit

### **Session WB6: Solar Cells and Novel Devices**

**Session Chair: Chih-Sheng Yang**

**Session Room: 576**

1. Development of Hybrid Drive with Observer Controlled Injection Shot for the Die Casting Machine  
Yaw-Jyh Kao and Chih-Sheng Yang
2. Hybrid Organic Solar Cells Based on Nanoparticles of Copper Indium Sulfur and Conjugated Polymer  
Chih Sheng Yang, Chen Da Tsai, Lu Wei Huang, Cheng Yung Kuo, and Chie Gau
3. Automated Assessment in HER-2/neu Immunohistochemical Expression of Breast Cancer  
Yung-Lung Kuo, Chien-Chuan Ko, and Jen-Yuan Lai
4. Characterization of a n-Type Field Effect Transistor Made from Direct Growth and Patterning of Single Wall Carbon Nanotubes Film  
Chen-Da Tsai, S H Shiau, C W Liu, C Gau, and B T Dai
5. Embedded Control System Design for “Novel Micro-fluidic Sensor” for the Measurement of Dynamic Liquid Interfacial Tension  
Syed Faiz Ahmed and Choudhry Fahad Azim

## **Session WB7 Machine Tool Information Service**

**Session Chair: Yu-Chuan Su**

**Session Room: 577**

1. Design of a Machine Tool Information Service System  
Hsin-Yu Cheng, Yu-Chuan Su, and Jo-Peng Tsia
2. Development of an Embedded Data Service System for Machine Tools  
Yu-Chuan Su and Hsin-Yu Cheng
3. An Agent-Based Distributed Smart Machine Tool Service System  
Yung-Chou Kao and Mau-Sheng Chen
4. Design and Construction of a Virtual Reality Wire Cut Electrical Discharge Machining System  
Yung-Chou Kao, Jo-Peng Tsai, Hsin-Yu Cheng, Chia-Chung Chao
5. Multi-Criteria Decision Making Method for Selection of Machine Tool  
Jo-Peng Tsai and Shan-Yang Wang
6. A New Shot-based Video Watermarking  
Yueh-Hong Chen and Hsiang-Cheh Huang

## **Session WB8: Mechatronic System & Optimization, Stability**

**Session Chairs: Chong-Ching Chang / David T.W. Lin**

**Session Room: 561**

1. The Optimal Design Process of the Plate Heat Exchanger  
David T.W. Lin, Ha Thi Xuan Chi, Chong-Ching Chang, Cheng-Chi Wang, and Chung-Neng Huang
2. The Disturbance Attenuation Analysis of T-S Fuzzy Models Using Composite Quadratic Lyapunov Functions  
Chi-Jo Wang, Juing-Shian Chiou, and Van Phong Vu
3. System-Level Modeling and Experimental Verification for The CMOS MEMS Microphone  
Di-Bao Wang, Hsin-Li Lee, and Pin Chang
4. A CMOS Readout Circuit with Frequency Optimization for Microphone Sensor Arrays  
Cheng-Ta Chiang, Wen-Chieh Chou, Ji-Ching Tsai, and Hsin-Li Lee
5. Design and Simulation of a CMOS-MEMS Gyroscope with a Low-Noise Sensing Circuit  
Hung-Yao Hung, Dou-Ru Chang, and Wen-Pin Shih

6. Stabilization Wedges as a Tool of Engineering Optimization with an Example of CO2 Emission Control  
Kazi Mostafa and Innchyn Her

**Session WB9: Control Systems and Applications II**

**Session Chair: Chao-Lin Kuo**

**Session Room: 562**

1. Risk Analysis for the Modification in Automatic Train Control Systems  
Xianhui Yang, Ming Xu, and Yao Cheng
2. An Adaptive Multi-objective Clonal Selection Algorithm  
Lu Hong and Zhicheng Ji
3. Adaptive Predictive Power Control for Wireless Communication Systems with Random Delay  
Cunwu Han, Dehui Sun, and Zhijun Li

## **Session TA1: Nonlinear System Analysis and Control**

**Session Chair: Her-Terng Yau**

**Session Room: 572**

1. Chaos Synchronization Between Two Different Chaotic Systems using Adaptive Interval Type-2 FNN Control  
Tsung-Chih Lin and Kang-Wei Hsu
2. Hybrid Adaptive Interval Type-2 Fuzzy Sliding Mode Controller for Chaos Synchronization of Uncertain Chaotic Systems  
Tsung-Chih Lin and Ming-Che Chen
3. An Excellent Mortality Prediction Model Based on Support Vector Machine (SVM)-a Pilot Study  
Chien-Lung Chan, Chia-Li Chen, and Hsien-Wei Ting
4. Evolutionary Optimization of a Fed-batch Penicillin Fermentation Process  
Hongwei Zhang, Ze Zhang, and Le Hung Lan
5. Multi-sensor Data Fusion via Federated Adaptive Filter  
Li-Wei Fong

## **Session TA2: Optimization and System Technologic**

**Session Chair: Shih-Hsu Huang**

**Session Room: 573**

1. Optimization of G/G/1/K Cyclic Service System with k-limited Discipline  
Shih-Cheng Horng and Chiung-Wen Chen
2. An Optimal Two-dimensional Orthogonal Range Search Algorithm in VLSI Design Automation  
Yu-Hsiang Pan, Kuo-Tien Lee, and Yung-Hung Wang
3. A Design Partitioning Algorithm for Three Dimensional Integrated Circuits  
Hua-Sin Ye, Mely Chen Chi, and Shih-Hsu Huang
4. Minimum Buffer Insertions for Clock Period Minimization  
Shih-Hsu Huang, Guan-Yu Jhuo, and Wei-Lun Huang
5. A Post-Processing Approach to Minimize TSV Number for High-Level Synthesis of 3D ICs  
Chih-Hung Lee, Tsorng-Yu Huang, Chun-Hua Cheng, and Shih-Hsu Huang

### **Session TA3: Intelligence Control**

**Session Chairs: Tzoo-Hseng S. Li / Yi-Pin Kuo**

**Session Room: 574**

1. A Novel Ecological-Biological-Behavior Particle Swarm Optimization for Ackley's Function  
Jhen-Jai Hu, Yu-Te Su, and Tzoo-Hseng S. Li
2. New Decision Tree Based on Genetic Algorithm  
Shiueng-Bien Yang and Shen-I Yang
3. Frequency Domain Criteria for  $l^p$ -Robust Stability of Systems with Fuzzy Parameters  
Le Hung Lan and Hongwei Zhang
4. A Fuzzy Logic Call Admission Control Scheme in Multi-class Traffic Cellular Mobile Networks  
Son Vo Truong, Lan Le Hung, and Hai Nguyen Thanh
5. A Study on the Three-dimensional Coordinate Calibration Using Fuzzy System  
Cheng-Liang Laia, Sung-Ting Tsaia, and Yi-Ping Hung
6. Automated Microfluidic Sample Stream Control for On-Chip Selective Drug Delivery  
Nicola Moscelli, Nicola Ladisa, and Michael J. Vellekoop

### **Session TA4: Learning and Education**

**Session Chair: Chien-Yu Lin**

**Session Room: 575**

1. Augmented Reality-Based Assistive Technology for Handicapped Children  
Chien-Yu Lin, Jo-Ting Chao, and Hsiao-Shan Wei
2. An Learner-centred, Game-based, Learning Framework for Typing Games in English Course  
Tsung-Li Wang, Tin-Kai Chen, and Ya-Fen Tseng
3. Application of Interactive Design as Teaching Materials for Learning Disabled Students  
Chien-Yu Lin, Eva Chang, Rain Chen, Chih-feng Lee, Jie-Ying Chen, Yin-Yin Chang, and Kai-Ping Yang

### **Session TA5 Mechatronics System Simulation and Performance Analysis**

**Session Chair: Cai-Wan Chang-Jian**

**Session Room: 576**

1. Simulations of SOFC on Electrochemical Performance

Shiuh-Ming Chang and Jenn-Kun Kuo

2. Influence on Pem Fuel Cell Bipolar Plate by Different Fiber Orientation and Cooling System  
Shiuh-Ming Chang and Cai-Wan Chang-Jian
3. Channel Blockage Design of Proton Exchange Membrane Fuel Cell  
Shiuh-Ming Chang and Cai-Wan Chang-Jian
4. Single Input Cerebellar Model Articulation Controller (CMAC) based Maximum Power Point Tracking for Photovoltaic System  
Min-Kuang Wu and Slamet Widodo
5. A Polarimeter for Measuring the Optical Rotation Angle in Chiral Medium  
Jing-Fung Lin, Jyh-Shyang Wu, Chih-Chao Chang, Cong-Hui Huang, and Te-Tan Liao
6. Fabrication of PLZT and the Measurement of Birefringence  
Jing-Fung Lin, Jyh-Shyang Wu, Jiann-Shing Jeng, and Bing-Hsun Wu

### **Session TB1: Image Processing I**

**Session Chair: Ioannis Manousakas**

**Session Room: 572**

1. Design of Bayer Image to NTSC Image Converter  
Yu-Chieh Chen and Tai-Shan Liao
2. A Re- Coloring Algorithm for a Color Image Using Statistic Scheme in CIE L\*a\*b\* Color Space  
Chen-Chung Liu and Guan-Nan Hu
3. Image Copyright Protection Scheme Using Sobel Technology and Genetic Algorithm  
Mn-Ta Lee and Shih-Syong Chen
4. A 3D Ultrasound Renal Calculi Fragmentation Image Analysis System for Extracorporeal Shock Wave Lithotripsy  
Ioannis Manousakas, Chih-Ching Lai, and Wan-Yi Chang
5. 3D Model Normalization Algorithm Using Star Topology for 3D Model Watermarking  
Chen-Chung Liu and Pei-Chung Chung
6. Transformed Domain Block Size and Intra Mode Decision for Advanced Video Coding  
Yung-Chiang Wei and Chao-Hsuing Tseng

**Session TB2: System Control Computing**  
**Session Chairs: Wen-Tsai Sung / Chiu-Keng Lai**  
**Session Room: 573**

1. A Generalized Multi-channel PID Controller Module Design using FPGA  
Chiu-Keng Lai, Cih-Ling Chen, and Kun-Lin Ho
2. Adaptive Proportional-Integral Speed Controller for Direct Torque Control of Induction Motor Using Neural Networks  
Shun-Yuan Wang, Chwan-Lu Tseng, Chaur-Yang Chang, Chih-Chun Yeh, and Jen-Hsiang Chou
3. Assessing Learning Emotion for Both the Cognitive Styles of Visualizer and Verbalizer Distributed to Different Types of Multimedia Learning Materials  
Ying-Chun Sun, Chih-Ming Chen
4. Fuzzy MRAS Based Speed Estimation for Sensorless Stator Field Oriented Controlled Induction Motor Drive  
Yung-Chang Luo and Cheng-Chou Lin
5. Multi-Sensors Data fusion for Precise Measurement based on ZigBee WSN via Fuzzy Control  
Wen-Tsai Sung, Chia-Hao Chen, Jui-Ho Chen, and Yu-Feng Liu

**Session TB3: Electrical Engineering System Analysis and Simulation**  
**Session Chairs: Meng-Hui Wang / Neng-Sheng Pai**  
**Session Room: 574**

1. Application of Extension Method to Selecting of Solar Power Systems  
Meng-Hui Wang, Jen-Cheng Yang, and Xiu-Hong Li
2. License Plate Recognition Based on Extension Theory  
Neng-Sheng Pai, Sheng-Fu Huang, Ying-Piao Kuo, and Chao-Lin Kuo
3. A HMI/GUI Control in a Steam-Pretreated Process for Agriculture Wastes Reuses  
Ruey-Fong Chang, Chen-Wei Chang, Jen-Hsiang Chou, and Shun-Yuan Wang
4. An Intelligent Islanding Detection Method Based-on Extension Theory for Photovoltaic Power Generation Systems  
Kuei-Hsiang Chao and Chia-Lung Chiu
5. Liapunov Functions Applied to Biomathematic Model of Dynamic System for Tuberculosis  
Shih-Ching Ou, Hung-Yuan Chung, and Chun-Yen Chung

## **Session TB4 Numerical Simulation in Micro-Nano Technology**

**Session Chair: Huei-Chu Weng**

**Session Room: 575**

1. Second-order slip Flow and Heat Transfer in a Microchannel  
Huei Chu Weng
2. Effect of the Substrate Thickness of Counter-flow Microchannel Heat Exchangers on the Heat Transfer Behaviors  
Thanhtrung Dang and Jyh-Tong Teng
3. Magnetohydrodynamic Field on Nonlinear Waves of a Thin Electrically Conducting Micropolar Liquid Film Flow Down a Vertical Column  
Po-Jen Cheng, Kuo-Chi Liu, and Chien-Nan Lin
4. Analysis of Thermal Response in a Tissue Based on Thermal Wave Model  
Chin-Tse Lin and Kuo-Chi Liu
5. Analysis of Temperature and Velocity Field in Air Conditioned Room  
Chien Nan Lin and Chi Hung Liao

## **Session TC1: Image Processing II**

**Session Chair: Chen-Chung Liu**

**Session Room: 572**

1. The Graphic System Design in Color Image Capturing System Using the USB Interface  
Chien-Hung Chen, Po-Jui Chen, and Tai-Shan Liao
2. A Watermarking Scheme for 3D Models Using Haar Discrete Wavelet Transform  
Chen-Chung Liu and Jiun-You Chen
3. Breast Extraction Scheme for Mammograms Using GVF-Snake  
Chen- Chung Liu, Chung-Yen Tsai, Shyr- Shen Yu
4. A Face Identification Algorithm using Two Dimensional Binary Principal Component Analysis  
Chen-Chung Liu and Shiuan-You Chin
5. An Extraction Algorithm of Vehicle License Plate Numbers Using Pixel Value Projection and License Plate Calibration  
Chen-Chung Liu and Zhi-Chun Luo
6. Apply Principal Gabor Basis Functions to Extract Discontinuous Points from Low-Resolution Binarized Fingerprint Images

Chih-Jen Lee, Tai-Ning Yang, Chun-Jung Chen, Chun-Lin Lo, and Li-Wei Chiang

**Session TC2: Technology Knowledge Innovation**

**Session Chair: Chien-Hung Liu**

**Session Room: 573**

1. Fractal Analysis and Multifractal Spectra for the Images  
Artde D.K.T. Lam and Q. Li
2. A Study on the Corporate Identity Information Service System  
Yu-Lin Hsu and D Des
3. Development of an Automatic Measurement System for Hitting Position using the Polyvinylidene Fluoride Based Two-dimensional Array Sensor  
Yu-Fen Chen and Hao-Lun Xie
4. Small Wind Turbine Power Curves Obtained in Laboratory  
Wei-Ching Chen, Sheng-Chung Tzeng, Paola Karina Valdivia, and Yi-Chang Yang
5. Characteristics of ZnO-based MSM Photodetectors with ZnO Cap Layer on Flexible Substrates  
L. W. Ji, C. Z. Wu, C. M. Lin, S. J. Young, K. T. Lam, W. Water, Y. F. Chen, C. H. Liu, and T. H. Meen
6. Applications Between Sport Management and Game Theory: A Case Study on 21st Summer Deaflympics  
Ho-Cheng Chou and Chih-Chen Hsiao

**Session TC3: Data Mining**

**Session Chairs: Wei-Chang Du / Mahnoosh Kholghi**

**Session Room: 574**

1. Automation of Data Mining for Telemetry Database of Computer Systems  
C.-H. Yang, C.-H. Wu, S.-C. Lo, M. Pecht, V. Sotiris, E. Rhem, and N. Vichare
2. A Syndrome-Based Hybrid Decoder for Turbo Product Codes  
Erl-Huei Lu and Pen-Yao Lu
3. A Study on Design Patent Knowledge Base System  
Rain Chen, Eva Chang, Ying-Jye Lee, Cheih-Ying Chen, Chien-Yu Lin, and Bei-Bei Yau

4. Loading Algorithms for Flexible Manufacturing Systems with Partially Grouped Unrelated Machines and Tooling Constraints  
H.-W. Kim, J.-S. Kim, J.-M. Yu, H.-H. Doh, D.-H. Lee, and S.-H. Nam
5. Classification and Evaluation of Data Mining Techniques for Data Stream Requirements  
Mahnoosh Kholghi, Hamed Hassanzadeh, and MohammadReza Keyvanpour
6. An Improved Algorithm for Frequent Patterns Mining Problem  
Thanh-Trung Nguyen

### **Session TC4: Innovative Neural Networks and Fuzzy Computing**

**Session Chair: Chun-Jung Chen**

**Session Room: 575**

1. Network Intrusion Detection Using Particle Filter and Colored Petri Nets  
Chien-Chuan Lin and Ming-Shi Wang
2. Modelling and Design a Power Assisted Wheelchair used Torque Observer  
Chin-Chih Ou, Chun-Jung Chen, and Tien-Chi Chen
3. Choquet Integral with Respect to the Generalized L-measure and its Application  
Hsiang-Chuan Liu, Der-Bang Wu, Wei-Sung Chen, er-Bang Wu, and Yu-Du Jheng
4. Cardiac Arrhythmia Diagnosis Method Using Fuzzy C-Means Algorithm on ECG Signals  
Yun-Chi Yeh and Hong-Jhih Lin
5. An Addition-Invariant Partial Order of Ordered Addition Monoids of Intuitionistic Fuzzy Values  
Hsiang-Chuan Liu

### **Session TC5: Computer Network**

**Session Chair: Chen-Da Tsai**

**Session Room: 576**

1. An Efficient Authentication Protocol for Virtual Subnets on Mobile Ad Hoc Networks  
Chuan-Wang Chang, Ching-Hung Yeh, and Chen-Da Tsai
2. An Object-Oriented Processor with Just-In-Time Compilation Support  
Anthony S. Fong, C. H. Yau, and Yiyu Tan
3. The Study for Campus Monitoring System of Attacks Analysis

Chung-Hsin Liu and Po-Cheng Teng

4. A New Rotation Estimation and Recovery Algorithm  
S. M. Elshoura and D. B. Megherbi
5. Reducing Power Consumed by a PC-based Server in an Internet-based Data Acquisition System Using a Novel Server agent  
I-Cheng Shen and Tang-Jen Liu

**Session TC6: Embedded System and Signal Processing**

**Session Chairs: Chung-Hsin Liu / Yi Shing Huang**

**Session Room: 577**

1. Efficient Computation of Multiscale Entropy in Biomedicine  
Yu-Hsiang Pan, Kun-Hsiung Chang, and Yung-Hung Wang
2. Pulse of the Physiological Signal Sensing Circuit in the Realization and Its Signal Acquisition Reconstruction System Design  
Hsi Chiang Chou, Ming Che Liou, Wei-Chin Lin, and Pi-Pai Chang
3. The Study on the Effectiveness for the Handoff of WiMAX and ZigBee  
Chung-Hsin Liu and Sheng-Shiang Chang
4. The Study for the ZigBee with Bluetooth Positioning System  
Chung-Hsin Liu and Jian-Yun Lo
5. Tag Quantity Estimation for RFID Based on Probability  
Chen-Chung Liu and Yin-Tsung Chan
6. Accelerating Recognition System of Leaves on Nios II Embedded Platform  
Yu-Ping Liao, Hao-Gong Zhou, and Gang-Ren Fan
7. Enhancement of Speech Recognition Using A Variable-length Frame Overlapping Method  
Ing-Jr Ding

## **Session FA1: Numerical Analysis**

**Session Chair: Pey-Shey Wu**

**Session Room: 571**

1. An Integrated Numerical Analysis for a Backward-Inclined Centrifugal Fan  
Sheam-Chyun Lin, Ming-Lun Tsai, Ming-Chou Shen, Wen-Liang Chen, and Hsien-Chang Shih
2. Process Exhaust Duct System Design in a Semiconductor Factory Using Feedback Simulation Method  
Wen-Liang Chen and Ming-Chiou Shen
3. Numerical Investigation of Aerodynamic Characteristics of a New Wind Turbine  
Pey-Shey Wu, Mien-Ying Kung, Hung-Yun Wu, and Chin-Jen Chang
4. A Study on the Product Design of Hair Dryer Using Neural Network Method  
Wen-Liang Chen and Ya-Mei Chiang
5. The Use of High-temperature Electric Furnace Process Technology for the 18-8 Stainless Steel Sensitized Effects  
Longtsong Ju, Shrliang Ju, and Naiyee Lin

## **Session FA2: Diffractive Optical Elements Applications & Communication Technology**

**Session Chair: Sheng-Hsiung Chang**

**Session Room: 572**

1. Break Diffraction Limit by Using Silver Nanorods  
Sheng-Hsiung Chang, Sheng Chung Chen, Cheng-Feng Yue, Kuo Pin Chiu, Jr Chau Shiu, Meng Wei Kuo and Chi Ming Chen
2. Design and Fabrication of Diffractive Optical Element Applied to Vertical-Cavity Surface Emitting Laser  
Sheng-Hsiung Chang, Tsair-Chun Liang, Cheng-Feng Yue, and Bo-Hong Ke
3. Lithography Mask Made by Silver Nanorods  
Sheng-Chung Chen, Yung-Chiang Wei, Heng-Yau Pan, Kuo-Pin Chiu, Jr-Chau Shiu, Meng-Wei Kuo, and Chi-Ming Chen
4. Fabrication and Design of Diffractive Optical Layer Applied to Resonant Cavity LED  
Sheng-Hsiung Chang, Tsair-Chun Liang, Cheng-Feng Yue, and Sin-Yao Huang
5. Tunable L-band  $16 \times 200$ GHz Multi-wavelength Fiber Laser Based on Cascaded SOAs and Optical Slicer

Chia-Hsiung Chang, Chong-Ting Kuo, and Tair-Chung Liang

**Session FA3: Power Application**

**Session Chair: Shun-Jih Wang**

**Session Room: 573**

1. The Maximum Power Demand Forecasting with Fuzzy Theory  
Ming-Rong Lee, Shun-Jih Wang, Lu Yi-Yu, Liang-I Tai, and Hao-Jun Shi
2. Modified Particle Swarm Optimization for Non-Continuous Optimal Power Flow Dispatch  
Ming-Rong Lee, Cong-Hui Huang, Kuo-kuang Chen, Chung-Chi Huang, Ching-Hsun Cheng, and Ying-Nan Xiao
3. The Developing of Solar Dynamoelectric Door with the Perception of Disaster Prevention  
Heng-Yau Pan, Long-Tsong Ju, Nai-Yee Lin, Yen-Tsen Ou, and Guo-Hao Lin
4. Effects of the Current Distribution on the Complementary Split Ring Resonator (CSRR) and Its Application to Dual-Stopband Characteristics  
Heng-Yau Pan and Hung-Wei Wu
5. Design and Implementation of DSP-based Voltage Frequency Conversion System  
Chih-YuanChen, Yu-Hsien Lin, Jiann-Fuh Chen, and Ray-Lee Lin

**Session FA4: Control Application I**

**Session Chair: Kuo-Kuang Chen**

**Session Room: 574**

1. Electronic Ballasts Directly Driven by a Battery Energy Storage System  
Kuo-kuang Chen and Hung-Shiang Chuang
2. A High-efficiency Integrated Circuit for LED Driving  
Kuo-kuang Chen, Shun-Jih Wang, Ming-Rong Lee, and Daniel Chen
3. Computer-Controlled Chinese Chess  
Dong-Sun Lee, Shun-Jih Wang, and Heng-Yau Pang
4. The Implementation for DVD Recycling Process by Arc-Discharge  
Chia-Ching Lin, Wen-Bin Lin, Huann-Keng Chiang, and Chien-An Chen
5. Fuzzy Sliding Mode-Based Control for PMSG Maximum Wind Energy Capture with Compensated Pitch Angle

Whei-Min Lin, Chih-Ming Hong, Ming-Rong Lee, Cong-Hui Huang, Chung-Chi Huang, and Bo-Lin Wu

### **Session FA5: Nonlinear System & Optimization**

**Session Chair: Cheng-Chi Wang**

**Session Room: 575**

1. Flow Field Analysis of Different Types of Blade and Baffle in a Fermentor  
Cheng-Chi Wang, Ya-Yen Chou, Shane-Rong Sheu, Ming-Jyi Jang, Jyun-Syuan Chen, and Li-Wen Huang
2. Analysis of Error Bounds of Elliptic Partial Differential Equations by Using Residual Correction Method  
Chi-Chang Wang and Minter Cheng
3. A Novel Method for mathematical modeling of Spatial Mechanisms with Spherical Joints  
Jung-Fa Hsieh and Jia-Huei Hwang
4. Unsteady Electroosmotic Flow in Asymmetrically Charged Slit Microchannel Containing Salt-Free Solution  
Shih-Hsiang Chang
5. The Effect of Embedded Adventure Education in Physical Education at Far East University  
Hsiao-Man Liu, Chih-Hao Chen, and Chun-Ling Wang
6. Experimental and Simulation of PET Injection Stretch Blow Molding of a 600ml Bottle  
Kun-Chang Lin, Chia-Hsun Chen, Hsin-Chih Peng, Chen-Feng Kuan, and Hsu-Chiang Kuan

### **Session FA6: Measurement and Control Application**

**Session Chair: Yi-Ming Tsao**

**Session Room: 576**

1. SoC-Based Software-Hardware Codesign of Intelligent Diagnosis  
Chung-Chi Huang, Kuan-Chen Lin, Cong-Hui Huang, Hsin-Pu Lin, and Cheng-Wei Liu
2. Hardware Design of Features Extraction Using Wavelet Packet Method for Intelligent Diagnostic System  
Chung-Chi Huang, Cong-Hui Huang, Yi-Ming Tsao, Shih-Chuan Huang, and Hao-Lun Huang
3. Anti-Windup Compensation of Saturated Systems with Phase-lead/Phase-lag Controller  
Shyi-Kae Yang, Shin-Yong Chen, Ming-Hui Chang, and Jian-Jhou Shyu

4. A Preventive Security-Constrained Optimal Power Flow with Hybrid Genetic-Ant Colony Optimization  
Cong-Hui Huang, Yi-Ming Tsao, Chung-Chi Huang, Jing-Fung Lin, and Kuan-Chen Lin
5. Electronic Piano Playing Robot  
Jen-Chang Lin, Hsing-Hsin Huang, Yen-Fang Li, Jen-Chao Tai, and Li-Wei Liu
6. Error Dependent Variable Feedrate Interpolation Strategy  
Kuan-Chen Lin, Cong-Hui Huang, Yi-Ming Tsao, Jui-Chun Wang, and Tsung-Min Chiu

### **Session FB1: AI and Control Applications**

**Session Chairs: Jian Liung Chen / Chia-Hung Lin**

**Session Room: 571**

1. General Quadratic Performance for Fuzzy Descriptor Systems  
Jian Liung Chen and Chia-Hung Lin
2. Assessment of Peripheral Vascular Occlusive Disease Using Adaptive Network-Based Fuzzy Inference System  
Chia-Hung Lin, Shih-Ming Pan, and Yi-Chun Du
3. Fractal Features Classification for Liver Biopsy Images Using Neural Network-based Classifier  
Shih-Ming Pan and Chia-Hung Lin
4. Design of Controller for Inverted Pendulum  
Yat-Chen Chen and Chih-Chin Wen
5. Design of Controller for PMSM  
Chien-Wen Chung and Yaote Chang

### **Session FB2: Signal Processing and Control**

**Session Chairs: Ying-Che Kuo / Her-Terng Yau**

**Session Room: 572**

1. Vision-based Vehicle Detection in the Nighttime  
Ying-Che Kuo and Hsuan-Wen Chen
2. Assessing the Effects of Various Multimedia Curriculums to Learning Emotion and Performance based on Emotion Recognition Technology  
Hui-Ping Wang and Chih-Ming Chen

3. Intelligent Control Design and Implementation of DC Servo Motor  
Meei-Ling Hung, Her-Terng Yau, Pi-Yun Chen, and Yuan-Hung Su
4. Enhance the Efficient of WSN Data Fusion by Neural Networks Training Process  
Wen-Tsai Sung, Yu-Feng Liu, Jui-Ho Chen, and Chia-Hao Chen
5. A Genetic Programming Based Rule Generation Approach for Intelligent Control Systems  
Cheng-Hsiung Chiang

### **Session FB3: Fuzzy Applications on Decision Making**

**Session Chairs: He-Yau Kang / Chun-Mei Lai**

**Session Room: 573**

1. Measuring Process Yield by Fuzzy Lower Confidence Bounds  
Chien-Wei Wu and Mou-Yuan Liao
2. A Multiple-Criteria Supplier Evaluation Model  
He-Yau Kang, Amy H. I. Lee, and Chun-Yu Lin
3. Performance Measurement of SMEs' Employees by Fuzzy Multi-criteria Decision Theory  
Shun-Chien Chen, Amy H. I. Lee
4. Site Selection for Franchise System of Service Industry using Fuzzy Theory  
Chun-Mei Lai, Cheng-Che Chen, and Hsiao-Yu Nien
5. Using Fuzzy Method to Measure the Consistency of Service Quality  
Cheng-Che Chen, Chun-Mei Lai, and Hsu-San Liu
6. The Statistical Validation for Article Neural Network  
Cheng-Yueh Tsai, Yi-Sheng Wang, Chih-Hung Hsu, and Wei-Ming Ou
7. Third-Generation Mobile Services in Taiwan : A Conceptual Framework and Theoretical Propositions  
Yi-Sheng Wang, Yongfu Chang, and Cheng-Yueh Tsai

### **Session FB4: Control Application II**

**Session Chair: Yi-Yu Lu**

**Session Room: 574**

1. Interval Digital Modeling of Chaotic Nonlinear Systems  
Cheng-Shion Shieh, Yi-Yu Lu, and Jyun-hong Lin

2. FPGA-Based Fuzzy PWM Control Implementation for Hybrid System  
Cheng-Shion Shieh, Yi-Yu Lu, Dong-Sun Lee, Rong-Ting Hung, and Jyun-hong Lin
3. The Device and Monitoring Method for the Status of Electric Equipment  
Yi-Yu Lu, Sheng-Hsiung Chang, and Cheng-Shion Shieh
4. An Estimating System using Electromyography for Therapeutic Exercise  
Yi-Yu Lu
5. zDesign and Implementation of a Web Services-based System for Bike Positioning  
Yun-Yao Chen and Yueh-Yun Wang
6. Consumer-Oriented Optimal Eco-Product Form Design  
Chen-Fu Chen, Chung-Hsing Yeh, and Yang-Cheng Lin

## **Session FB5: Modeling and Numerical Simulation**

**Session Chair: Yen-Liang Yeh**

**Session Room: 575**

1. A Proposal for Improved Particle Swarm Optimization  
PenChen Chou, EeChen Lin, and WayLen Don
2. The Optimal Study of Finite Element Modeling for a High Speed Hollow Shaft with a Hot-fitted Motor Rotor  
Shin-Yong Chen and Shyi-Kae Yang
3. The Measurement of the Methanol Concentration of Liquid Solution Based on Laser Interferometer  
Yen-Liang Yeh, Ming-Jyi Jang, Chia-Hsing Shen, Kuo-Ying Chen, Po-Jen Cheng, and Chih-Chia Wang
4. The Optical Property Measurement of the Mixture of Methanol and Ethanol Based on Laser Interferometer  
Kuo-Ying Chen, Ming-Jyi Jang, Chia-Hsing Shen, Yen-Liang Yeh, Cheng. Chi. Wang, and Chi. Wen. Lee
5. Molecular Dynamics Investigation into Mechanisms of Hydrogen Diffusion in Flexible-Wall Narrow Carbon Nanotubes  
Bin-Hao Chen, Cha'o-Kuang Chen, and Mei-Liang Tseng
6. Influence of Biphenyl Chemisorption on the Thermal Properties of Single-Walled Carbon Nanotube

Bin-Hao Chen, Chao-Ho Lan, Ming-Shan Jeng, Chn-Ju Huang, Mu-Li Chang, Fang-Hei Tsau, Jie-Ren Ku, and Song-Yih Lin

**Session FB6: Smart Lighting**

**Session Chair: Fenq-Lin Jenq**

**Session Room: 576**

1. An AC LED Smart Lighting System with White Light FSO Communication  
Fenq-Lin Jenq, Yu-Chi Pu, and Zong-Cheng Weng
2. A Smart Lighting System with White LED FSO Communication  
Fenq-Lin Jenq, Yu-Chi Pu, and Wei-Chang Du
3. The Fabrication of LED Detecting System  
Hsien-Cheng Tseng and Jia-Hao Chang
4. Automatic Measurement System for Junction Temperature of Light Emitting Diodes  
C. L. Kuo and D. Y. Lin
5. Employing Broadband Light Source on FTTx/RoF Transmission System  
Sheng-Hui Meng, Jen-Fa Huang, Ke-Jen Hu, and An-Chi Huang

**Session FB7: Intelligent Methods for Signal Processing and Control**

**Session Chair: Tsung-Ying Sun**

**Session Room: 577**

1. Intelligent Path Planning for Unmanned Vehicle Automatic Guidance  
Chih-Li Huo, Jih-Cheng Syu, and Tsung-Ying Sun
2. Intelligent Data Cluster Algorithm Based on Hierarchical FCM and Mahalanobis Distance  
Jyun-Sian He, Sin-Jhe Ciou, and Tsung-Ying Sun
3. A Novel Validity Index for Fuzzy Clustering Algorithm  
Horng-Lin Shieh and Po-Lun Chang
4. An Efficient Approach for Motion Detecting and Tracking  
Po-Lun Chang, Horng-Lin Shieh, Fei-Hu Hsieh, and Wei-Lieh Hsu
5. A Particle Swarm Optimization Approach for PID Controller System with Disturbance  
Shang-Jeng Tsai, Ping-Lin Chen, and Tsung-Ying Sun