

# **2010 IEEE 9th International Conference on Cybernetic Intelligent Systems**

**(CIS 2010)**

**Reading, United Kingdom  
1-2 September 2010**



**IEEE Catalog Number: CFP1033F-PRT**  
**ISBN: 978-1-4244-9023-3**

# TABLE OF CONTENTS

<b>A Little-known Origin of Cybernetic Thinking and Some Implications</b> .....	1
<i>A. Andrew</i>	
<b>Prediction of Output Response Probability for Sound Environment System by Introducing Stochastic Regression and Fuzzy Inference for Simplified Standard System Model</b> .....	2
<i>A. Ikuta, H. Orimoto</i>	
<b>Multi-Class AdaBoost Learning of Facial Feature Selection through Grid Computing</b> .....	8
<i>M. Zhou, H. Wei, I. Bland, A. Worrall, D. Spence, X. Wang, P. Wen, F. Liu</i>	
<b>Intelligent System for Non-Destructive Evaluation of Historic Walls using Ground-Penetrating Radar</b> .....	14
<i>G. Safont, A. Salazar, J. Gosalbez, L. Vergara</i>	
<b>Dynamic Facility Layout Problem with Hybrid Genetic Algorithm</b> .....	20
<i>K. Ripon, K. Glette, M. Hovin, J. Torresen</i>	
<b>Low Cost VLSI Discrete Wavelet Transform and FIR Filters Architectures for Very High-Speed Signal and Image Processing</b> .....	26
<i>M. Maamoun, R. Bradai, A. Meraghni, R. Beguenane</i>	
<b>Features for Detection of Parkinson's Disease Tremor from Local Field Potentials of the Subthalamic Nucleus</b> .....	32
<i>E. Bakstein, K. Warwick, O. Stavdahl, T. Aziz, J. Burgess</i>	
<b>Robust Three-Dimensional Scene Recovery from Monocular Image Pairs</b> .....	38
<i>T. Warsop, S. Singh</i>	
<b>Prosthesis Grasp Reflex Via Peripheral Nerve Control - an in Vitro Study</b> .....	44
<i>G. Valderrama-Gonzalez, M. Gasson, B. Whalley, K. Warwick</i>	
<b>A Novel Human-Machine Interface using Subdermal Magnetic Implants</b> .....	50
<i>J. Hameed, I. Harrison, M. Gasson, K. Warwick</i>	
<b>Cavalcade Neural Network for Mobile Robot</b> .....	55
<i>C.D. Bamford, R.J. Mitchell</i>	
<b>Meta-heuristics Tunning using CBR for Dynamic Scheduling</b> .....	61
<i>I. Pereira, A. Madureira</i>	
<b>Parameter Analysis of Reynolds Flocking Model</b> .....	67
<i>J. Eversham, V. Ruiz</i>	
<b>Identifying Problematic Classes in Text Classification</b> .....	73
<i>P. Roberts, J. Howroyd, R. Mitchell, V. Ruiz</i>	
<b>Finding a Set of Optimal Viewing for 3D Surface Reconstruction from 2D X-ray Images using Genetic Algorithm</b> .....	79
<i>S. Prakoonwit</i>	
<b>Application of Poisson-based Hidden Markov Models to in Vitro Neuronal Data</b> .....	85
<i>D. Xydas, M. Spencer, J. Downes, M. Hammond, V. Becerra, K. Warwick, B. Whalley, S. Nasuto</i>	
<b>A Fuzzy Based Hopfield Network for Partitional Clustering</b> .....	91
<i>V. Abrishami, H. Deldari, G. Tabrizi, M. Sabzevari</i>	
<b>The Design Methodology for Hybrid System Verification</b> .....	96
<i>M. Pluska, D. Sinclair</i>	
<b>Using Features Extracted from Wikipedia for the Task of Word Sense Disambiguation</b> .....	102
<i>A. Bawakid, M. Oussalah</i>	
<b>Investigation of Spatio-temporal Dependencies in Neuronal Functional Connectivity</b> .....	108
<i>M. Spencer, D. Xydas, J. Downes, M. Hammond, V. Becerra, K. Warwick, B. Whalley, S. Nasuto</i>	
<b>Cloud based Global Positioning System as a Safety Monitor for Dementia Patients</b> .....	114
<i>J. Geddes, K. Warwick</i>	
<b>Bayesian Model Averaging over Decision Trees for Assessing Newborn Brain Maturity from Electroencephalogram</b> .....	120
<i>L. Jakaite, V. Schetinin, C. Maple, J. Schult</i>	
<b>Comparing Behavior Patterns of Swarms that Learn Using Tolerance Perceptual Near Sets</b> .....	126
<i>K.S. Patnaik, G. Sahoo, J.F. Peters</i>	
<b>Semantic Intertwine</b> .....	131
<i>J. St. Quinton</i>	
<b>Adaptive Biologically-inspired Algorithm-based Controller Tuning for Input Tracking Control of Flexible Manipulators</b> .....	136
<i>H. Supriyono, M.O. Tokhi, B.A. Zain</i>	

<b>An Open-Bounded Cybernetic Case Study of Viable Computing Systems: Applying Directive Correlation to an Algorithmic Hot-Swapping Scenario .....</b>	<b>142</b>
<i>R.J. Thompson, A.G. Laws, D.J. Reilly, A. Taleb-Bendiab, D. Llewellyn-Jones</i>	
<b>A Holonic Systems Approach to the Formation of Manufacturing Networks .....</b>	<b>148</b>
<i>G. Jules, M. Saadat, M. Owliya</i>	
<b>Robust H8 Optimal Controller Designs for Feedback Substitution Schemes using LSDP and MOGA .....</b>	<b>154</b>
<i>M. Trujillo, S. Hadjiloucas, V. Becerra</i>	
<b>Distance-Invariant Sign Detection in High-Definition Video .....</b>	<b>160</b>
<i>T. Warsop, S. Singh</i>	
<b>A Cybernetic Case Study of Viable Computing Systems: A Framework for Requisite Variety via Algorithmic Hot-Swapping .....</b>	<b>166</b>
<i>R.J. Thompson, A.G. Laws, D.J. Reilly, A. Taleb-Bendiab, D. Llewellyn-Jones</i>	
<b>A Survey of Object Recognition Methods for Automatic Asset Detection in High-Definition Video .....</b>	<b>172</b>
<i>T. Warsop, S. Singh</i>	
<b>An Adaptive Approach to the Characters Size for Text Detection in Images .....</b>	<b>178</b>
<i>M. Nazarahari, V. Ghaleh</i>	
<b>Lip Contour Extraction using RGB Color Space and Fuzzy C-means Clustering .....</b>	<b>183</b>
<i>V. Ghaleh, A. Behrad</i>	
<b>Classification and Metaclassification in Large Scale Data Mining Application for Estimation of Software Projects .....</b>	<b>187</b>
<i>D. Dzeza, W. Pietruszkiewicz</i>	
<b>A Comparison of Nonlinear Kalman Filtering Applied to Feed-forward Neural Networks as Learning Algorithms .....</b>	<b>193</b>
<i>W. Pietruszkiewicz</i>	
<b>Representation of Adaptive Tinnitus Suppression Mechanism in an Adaptive Cochlear Model .....</b>	<b>199</b>
<i>M. Nazarahari, H. Sajedi</i>	
<b>Analysis of Distance Headway and Density at a Variable Message Signs Network in Kuala Lumpur .....</b>	<b>205</b>
<i>A. Roshandeh, M. Nesheli</i>	
<b>Inverse Model Based Control for a Twin Rotor System .....</b>	<b>209</b>
<i>S.F. Toha, M.O. Tokhi</i>	
<b>Active Vibration Control of a Flexible Plate Structure using Particle Swarm Optimization .....</b>	<b>214</b>
<i>S. Julai, M.O. Tokhi, M. Mohamad, I. Latiff</i>	
<b>Genetic Algorithm based Modeling and Control of a Two Wheeled Vehicle with an Extended Rod, a Lagrangian based Dynamic Approach .....</b>	<b>220</b>
<i>K. Goher, M.O. Tokhi</i>	
<b>A Two-Wheeled Vehicle with an Extended Rod, Mechanical Design Clues and Dynamic Modelling .....</b>	<b>226</b>
<i>K. Goher, M.O. Tokhi</i>	
<b>More Nested Velocity Feedback Control .....</b>	<b>232</b>
<i>R.J. Mitchell</i>	
<b>SISO and SIMO Active Vibration Control of a Flexible Plate Structure using Real-coded Genetic Algorithm .....</b>	<b>238</b>
<i>S. Julai, M.O. Tokhi</i>	
<b>Evolutionary Computation System for Problem-Tailored Genetic Optimization of Catalytic Materials .....</b>	<b>244</b>
<i>M. Holena, D. Linke, U. Rodemerck</i>	
<b>CSM-based Feature Extraction For Degraded Machine Printed Character Recognition .....</b>	<b>250</b>
<i>A. Namane, M. Maamoun, E. Soubari, P. Meyrueis</i>	
<b>A Two-Stage Dynamic Decision Support based Optimal Threat Evaluation and Defensive Resource Scheduling Algorithm for Multi Air-borne Threats .....</b>	<b>256</b>
<i>H. Naeem, A. Masood</i>	
<b>Using Triangulation to Identify Word Senses .....</b>	<b>263</b>
<i>P. Roberts, R. Mitchell, V. Ruiz</i>	
<b>Comparison of Interactive Multiple Model Particle Filter and Interactive Multiple Model Unscented Particle Filter for Tracking Multiple Manoeuvring Targets in Sensors Array .....</b>	<b>269</b>
<i>Z. Messaoudi, A. Ouldali, M. Oussalah</i>	
<b>Reconstruction of Fingerprint Images .....</b>	<b>275</b>
<i>R. Malik, A. Masood</i>	
<b>Self-Tuning AIS-Based Active Vibration Control of a Thin Plate .....</b>	<b>281</b>
<i>S. Salleh, M.O. Tokhi</i>	
<b>A Semantic-Based Text Classification System .....</b>	<b>287</b>
<i>A. Bawakid, M. Oussalah</i>	
<b>Online versus Offline Learning for Spiking Neural Networks: A Review and New Strategies .....</b>	<b>293</b>
<i>J. Wang, A. Belatreche, L. Maguire, M. McGinnity</i>	

<b>Colour Based Road Sign Detection and Extraction from Still Images .....</b>	<b>299</b>
<i>R. Malik, S. Nazir, J. Khurshid</i>	
<b>Tuning of RLS-Active Vibration Controller using Genetic Algorithm .....</b>	<b>305</b>
<i>S. Salleh, M.O. Tokhi</i>	
<b>The Design of the Substation Simulation Model of Distributed Virtual Environment .....</b>	<b>311</b>
<i>Z. Qu, Y. Wang</i>	
<b>Automatic Face Emotion Recognition System.....</b>	<b>315</b>
<i>J. Li, M. Oussalah</i>	
<b>Total Variational Image Denoising. Influence of Noise Distribution: Comparison Analysis .....</b>	<b>321</b>
<i>M. Oussalah, I. Alam</i>	
<b>Variational Model for Robust Computation of Optical Flow Under Varying Illumination.....</b>	<b>328</b>
<i>M. Kharbat, N. Aouf</i>	
<b>Analysis of the Jump and Approximate Gradient for Solutions of Mumford-Shah Type Energy Functionals .....</b>	<b>335</b>
<i>R. Brouzet, G. Michaille, W. Puech, J. Rakotondralambo</i>	
<b>The Analytical, Numerical and Neural Network Evaluation Versus Experimental of Electromagnetic Shielding Effectiveness of a Rectangular Enclosure with Apertures.....</b>	<b>341</b>
<i>F. Belkacem, M. Bensetti, M. Laour, A. Boutar, M. Djennah, D. Moussaoui, B. Mazari</i>	
<b>The Science of Philosophy: An application of Semantic Category Analysis .....</b>	<b>347</b>
<i>J. St. Quinton</i>	
<b>3D Cooperative Pythagorean Hodograph Path Planning and Obstacle Avoidance for Multiple UAVs .....</b>	<b>353</b>
<i>M. Shah, N. Aouf</i>	
<b>Robust Cooperative UAV Visual SLAM .....</b>	<b>359</b>
<i>A. Nemra, N. Aouf</i>	
<b>Optimal Planner for Lawn Mowers .....</b>	<b>365</b>
<i>P.M. Hsu, C.L. Lin</i>	
<b>Evolving Cooperative Neural Agents for Controlling Vision Guided Mobile Robots.....</b>	<b>372</b>
<i>O. Chang</i>	
<b>Algebraic Operator Support for Semantic Data Fusion in Extended SQL.....</b>	<b>378</b>
<i>S. Hosain, H. Jamil</i>	
<b>ANFIS Modelling of a Twin Rotor System Using Particle Swarm Optimisation and RLS .....</b>	<b>384</b>
<i>S.F. Toha, M.O. Tokhi</i>	
<b>Particle Swarm Optimisation with Dynamic Spread Factor with Application to Modelling of a Flexible Beam Structure.....</b>	<b>390</b>
<i>M. Mohamad, M.O. Tokhi, I. Latiff</i>	
<b>A New Deformable Model for Cataract Eye Surgery Simulation.....</b>	<b>396</b>
<i>E.M. Abulgasem, S. Nefti</i>	
<b>A New Design Approach of Robotic Gripper for Reducing Operating Cost for Handling Food Product .....</b>	<b>402</b>
<i>R. Sam, S. Nefti</i>	
<b>Teleoperated Mobile Manipulator Robot .....</b>	<b>407</b>
<i>T.J. Leow, K.S. Sim</i>	
<b>Advanced Knowledge Management Concept for Sustainable Environmental Integration .....</b>	<b>413</b>
<i>F. Ansari, A. Holland, M. Fathi</i>	
<b>Author Index</b>	