2010 International Conference on Technologies and Applications of Artificial Intelligence

(TAAI 2010)

Hsinchu City, Taiwan
18 – 20 November 2010
2010 International Conference on Technologies and Applications of Artificial Intelligence

TAAI 2010

Table of Contents

Message from the Conference Chairs and Program Chairs ................................................................. xii
TAAI Organizing Committee .................................................................................................................... xiv
TAAI Reviewers ........................................................................................................................................ xvi
ICWG Workshop Organization ................................................................................................................... xvii
ICWG Workshop Reviewers .................................................................................................................... xviii
TAEA Workshop Organization ................................................................................................................... xix
TAEA Workshop Reviewers .................................................................................................................... xx

International Conference on Technologies and Applications of Artificial Intelligence (TAAI)

A101

Robust Algorithm for Computational Color Constancy ............................................................................ 1
S.J. Jerome Teng

Adaptive Image Enhancement for Fluorescence Microscopy ..................................................................... 9
Jyh-Ying Peng, Chung-Chih Lin, and Chun-Nan Hsu

A Hybrid Fast Fractal Image Encoding .................................................................................................... 17
Wen-Ling Chen and Yih-Lon Lin

Classification-based Image Compression Method ....................................................................................... 21
Zhang Min-rui, Ma Rui, and Zhou Quan

A102

A Fusion Technique for Iris Localization and Detection ............................................................................. 27
Chai Tong Yuen, Saeid Ali Hosseini Noudesh, Mohammad Shazri, and Mohamed Rizon

A Novel System Model to Recognition of Merged-Characters Under Linear, Nonlinear and Overlapped ................................................................................................................................. 31
Dayong Zhu and Xiaoguang Tian
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Objective Quantum Evolutionary Algorithm for Discrete Multi-Objective</td>
<td>39</td>
</tr>
<tr>
<td>Xin Wei and Shigeru Fujimura</td>
<td></td>
</tr>
<tr>
<td>An Extensional Signed Lambda-fuzzy Measure Based on Signed Monotonicity</td>
<td>47</td>
</tr>
<tr>
<td>Hsiang-Chuan Liu</td>
<td></td>
</tr>
<tr>
<td>A03</td>
<td></td>
</tr>
<tr>
<td>LAMP, A Lyrics and Audio MandoPop Dataset for Music Mood Estimation: Dataset Compilation, System Construction, and Testing</td>
<td>53</td>
</tr>
<tr>
<td>Wei Rong Chu, Richard Tzong-Han Tsai, Ying-Sian Wu, Hui-Hsin Wu, Hung-Yi Chen, and Jane Yung-jen Hsu</td>
<td></td>
</tr>
<tr>
<td>A Reinforcement Learning Approach to Emotion-based Automatic Playlist Generation</td>
<td>60</td>
</tr>
<tr>
<td>Chung-Yi Chi, Richard Tzong-Han Tsai, Jeng-You Lai, and Jane Yung-jen Hsu</td>
<td></td>
</tr>
<tr>
<td>An Exploration of Native Speakers’ Eye Fixations in Reading Chinese Text</td>
<td>66</td>
</tr>
<tr>
<td>Chiao-Lin Liu, Juei-Yu Weng, Yi-Hsuan Chuang, and Je-Li Tsai</td>
<td></td>
</tr>
<tr>
<td>An Intelligent Recommendation Model with a Case Study on u-Tour Taiwan of Historical Monuments and Cultural Heritage</td>
<td>72</td>
</tr>
<tr>
<td>Wei-Ding Liao, Don-Lin Yang, and Ming-Chuan Hung</td>
<td></td>
</tr>
<tr>
<td>A04</td>
<td></td>
</tr>
<tr>
<td>Bankruptcy Prediction Incorporating Macroeconomic Variables Using Neural Network</td>
<td>80</td>
</tr>
<tr>
<td>Ligang Zhou, Kin Keung Lai, and Jerome Yen</td>
<td></td>
</tr>
<tr>
<td>StakeNet: Devise, Study and Utilize Social Networks Using Stakeholder Information</td>
<td>86</td>
</tr>
<tr>
<td>Tsung-Ting Kuo, Jung-Jung Yeh, Chia-Jen Lin, and Shou-De Lin</td>
<td></td>
</tr>
<tr>
<td>Investment Project Valuation Based on the Fuzzy Real Options Approach</td>
<td>94</td>
</tr>
<tr>
<td>Shu-Hsien Liao and Shiu-Hwei Ho</td>
<td></td>
</tr>
<tr>
<td>An Intrinsic Graphical Signature Based on Alert Correlation Analysis for Intrusion Detection</td>
<td>102</td>
</tr>
<tr>
<td>Hsing-Kuo Pao, Ching-Hao Mao, Hahn-Ming Lee, Chi-Dong Chen, and Christos Faloutsos</td>
<td></td>
</tr>
<tr>
<td>A05</td>
<td></td>
</tr>
<tr>
<td>Coordination of a Society of Agents for Automatic Distribution System Restoration: Toward a Smart Grid</td>
<td>110</td>
</tr>
<tr>
<td>Von-Wun Soo, Men-Shen Tsai, Wan-Yu Yu, and Yen-Bo Peng</td>
<td></td>
</tr>
<tr>
<td>A Multi-Agent Reinforcement Learning Algorithm for Disambiguation in a Spoken Dialogue System</td>
<td>116</td>
</tr>
<tr>
<td>Fangju Wang</td>
<td></td>
</tr>
<tr>
<td>Research on Traditional Chinese Medicine Human Body Structure and Function Model Based on Multi-agent</td>
<td>124</td>
</tr>
<tr>
<td>Yi Faling, Guo Jiao, Tu Yongqiu, and Yang Jin</td>
<td></td>
</tr>
</tbody>
</table>
Virtual Doctor System (VDS): Framework on Reasoning Issues: Ontology Based
Reasoning for Virtual Doctor System ........................................................................................................129

Hamido Fujita, Jun Hakura, and Masaki Kurematsu

A06

Projection-Based Utility Mining with an Efficient Indexing Mechanism .........................................................137

Guo-Cheng Lan, Tzung-Pei Hong, and Vincent S. Tseng

Mining Top-K Sequential Patterns in the Data Stream Environment ..........................................................142

Bi-Ru Dai, Hung-Lin Jiang, and Chih-Heng Chung

Developing Soft Sensors Based on Data-Driven Approach ...........................................................................150

Jialin Liu

A Study on Genetic Algorithm and Neural Network for Implementing Mini-Games ......................................158

Phasit Charoenkwan, Shih-Wei Fang, and Sai-Keung Wong

A07

Using Chunking to Optimise an Alpha-Beta Search .....................................................................................166

Andrew Cook and William Edmondson

Nested Monte-Carlo Search with AMAF Heuristic .......................................................................................172

Haruhiko Akiyama, Kanako Komiya, and Yoshiyuki Kotani

Pruning in UCT Algorithm .......................................................................................................................177

Jing Huang, Zhiqing Liu, Benjie Lu, and Feng Xiao

Monte Carlo Go Using Previous Simulation Results ....................................................................................182

Takuma Toyoda and Yoshiyuki Kotani

Probability Collectives in Dynamic Environments: A Study of Controlling the Balance between Exploration and Exploitation of the Search .................................................................187

Chien-Feng Huang and Bao Rung Chang

A08

An Efficient Real-Time Traffic Sign Recognition System for Intelligent Vehicles with Smart Phones .................................................................195

Ching-Hao Lai and Chia-Chen Yu

Learning Evolutionary Strategy for a Mobile Manipulator in Imitation Learned Tasks ...............................203

César Arismendi, M.L. Mu-oz, Dolores Blanco, and Luis Moreno

Application of Integrated Central and Distributed Decisions to Path Tracking Control of a Vision-based Intelligent Vehicle ..............................................................................................210

Weihua Zhang, Minglei Wang, Wawei Chen, and Andrew A. Goldenberg

“Solution Path”: The Structure of the Solution Steps for Pencil Puzzle .....................................................217

Takashi Korekawa, Kanako Komiya, and Yoshiyuki Kotani
Hybrid Genetic Algorithm with Mixed Mutation Mechanism for Optimal Display Panel Circuit Design .......................................................... 222
   I-Hsiu Lo, Yiming Li, and Kuo-Fu Li

AI09
An Automatic Method for Selecting the Parameter of the Normalized Kernel Function to Support Vector Machines ................................................................. 226
   Cheng-Hsuan Li, Chin-Teng Lin, Bor-Chen Kuo, and Hsin-Hua Ho
Tree Decomposition for Large-Scale SVM Problems .......................................................... 233
   Fu Chang, Chien-Yang Guo, Xiao-Rong Lin, Chan-Cheng Liu, and Chi-Jen Lu
Smooth LASSO for Classification .................................................................................. 241
   Li-Jen Chien, Zhi-Peng Kao, and Yuh-Jye Lee
Unsupervised Feature Selection: Minimize Information Redundancy of Features .............. 247
   Chun-Chao Yen, Liang-Chieh Chen, and Shou-De Lin
An Adaptive Multiple Feature Subset Method for Feature Ranking and Selection ............... 255
   Fu Chang and Jen-Cheng Chen

AI10
Indexing Ontological Structure Based on Neighbor Tree .................................................. 263
   Xiang Zhang and Huaping Chen
Extracting Topics Information from Conference Web Pages Using Page Segmentation and SVM ......................................................................................... 270
   Yaw-Huei Chen, Sin-Sian Li, and Yu-Ta Chen
Efficient Reconstruction of Dynamic Web Contents in Hierarchical Environment .............. 278
   Lung-Pin Chen, Yu-Hsiang Huang, and Ke-Chiang Chih
Discovering and Exploiting Cumulative Cues for Informational Web Search .................... 286
   Yue-Cen Liu, Wei-Hsun Wen, and Wei-Guang Teng
Using Wikipedia’s Content for Cross-Website Page Recommendations that Consider Serendipity .................................................................................. 293
   Pei-Chia Chang and Luz M. Quiroga

AI11
Using Differential Evolution for the Transportation Problem with Fuzzy Coefficients .......... 299
   Feng-Tse Lin
An Estimation of Distribution Algorithm Based Portfolio Selection Approach ................... 305
   Rui-tian Xu, Jun Zhang, Ou Liu, and Rui-chang Huang
Ant Population Meta-Heuristics for Binary Constraint Satisfaction Problems .................. 314
   Kazunori Mizuno, Yoshitaka Nagasawa, Hitoshi Sasaki, and Seiichi Nishihara
International Workshop on Computer Games (IWCG 2010)

CG1
Enhancing Transparent Fuzzy Controllers Through Temporal Concepts: An Application to Computer Games .................................................405
   Giovanni Acampora, Vincenzo Loia, and Autilia Vitiello
Searching for Stage Proof Number in Connect6 ........................................413
   Shi-Jim Yen and Jung-Kuei Yang
Solving 9 Layer Triangular Nim .................................................................421
   Yi-Chang Shan, I-Chen Wu, Hung-Hsuan Lin, and Kuo-Yuan Kao
Chilled Domineering .............................................................................427
   Kuo-Yuan Kao, I-Chen Wu, Yi-Chang Shan, and Hung-Hsuan Lin

CG2
A Trial AI System with Its Suggestion of Kifuu (playing style) in Shogi .........................433
   Satoshi Namai and Takeshi Ito
A Simple and Rapid Lights-up Solver ................................................................440
   Shih-Yuan Chiu, Shi-Jim Yen, Cheng-Wei Chou, and Tai-Ning Yang
Optimization of Nonogram’s Solver by Using an Efficient Algorithm ..................444
   Shi-Jim Yen, Tsan-Cheng Su, Shih-Yuan Chiu, and Jr-Chang Chen
Integration of Chinese Chess Endgame Knowledge Bases ..................................450
   Bo-Nian Chen, Pangfeng Liu, Shun-Chin Hsu, and Tsan-sheng Hsu
Solving the Minimum Sudoku Problem ....................................................456
   Hung-Hsuan Lin and I-Chen Wu

CG3
Time Management for Monte-Carlo Tree Search Applied to the Game of Go .................462
   Shih-Chieh Huang, Rémi Coulom, and Shun-Shii Lin
UCD: Upper Confidence Bound for Rooted Directed Acyclic Graphs ......................467
   Abdallah Saffidine, Tristan Cazenave, and Jean Méhat
M-eval: A Multivariate Evaluation Function for Opening Positions in Computer Go ........474
   Jacques Basaldúa, Tai-Ning Yang, and J. Marcos Moreno Vega
Modification of UCT Algorithm with Quiescent Search in Computer GO ..............481
   Feng Xiao and Zhiquing Liu

CG4
Ontology-based Intelligent Agent for Game of Go .........................................485
   Mei-Hui Wang, Chang-Shing Lee, Li-Wen Wu, Ming-Chi Cheng, and Olivier Teytaud
Parallel Monte-Carlo Tree Search with Simulation Servers ................................................................. 491
  Hideki Kato and Ikuo Takeuchi

Dynamic Randomization Enhances Monte-Carlo Go ............................................................................. 499
  Keh-Hsun Chen

International Workshop on Theory and Applications of Evolutionary Algorithms (TAEA 2010)

A New Method for Estimating Bank Credit Risk .................................................................................. 503
  Jiun-Yao Chiua, Yan Yan, Gao Xuedongb, and Rung-Ching Chen

Detecting General Problem Structures with Inductive Linkage Identification .................................. 508
  Yuan-wei Huang and Ying-ping Chen

XCS with Bit Masks .................................................................................................................................. 516
  Jia-Huei Lin and Ying-ping Chen

Forecasting Chaotic Time Series Using an Artificial Immune System Algorithm-based BPNN ............. 524
  Jui-Yu Wu

A Cluster-Based Divide-and-Conquer Genetic-Fuzzy Mining Approach for Items with Multiple Minimum Supports ........................................................................................................ 532
  Chun-Hao Chen, Lien-Chin Chen, Tzung-Pei Hong, and Vincent S. Tseng

Ant Colony Optimization for the Single Vehicle Pickup and Delivery Problem with Time Window ................................................................................................................................. 537
  Yu-Hsuan Huang and Chuan-Kang Ting

Author Index .................................................................................................................................................. 544