Table of Contents – Part II

Supervised Learning and Unsupervised Learning

Maximum Variance Sparse Mapping .......................................................... 1
  Bo Li, Jin Liu, and Wenyong Dong

Contourlet-Based Texture Classification with Product Bernoulli
Distributions ......................................................................................... 9
  Yongsheng Dong and Jinwen Ma

Resampling Methods versus Cost Functions for Training an MLP in
the Class Imbalance Context ................................................................. 19
  R. Alejo, P. Toribio, J.M. Sotoca, R.M. Valdovinos, and E. Gasca

Prediction of Urban Stormwater Runoff in Chesapeake Bay Using
Neural Networks .................................................................................. 27
  Nian Zhang

One-Shot Learning of Poisson Distributions in Serial Analysis of Gene
Expression ............................................................................................ 37
  Peter Tino

Simultaneous Model Selection and Feature Selection via BYY Harmony
Learning ................................................................................................. 47
  Hongyan Wang and Jinwen Ma

Kernel Methods and Support Vector Machines

The Characteristics Study on LBP Operator in Near Infrared Facial
Image .................................................................................................. 57
  Qiang Chen and Weiqing Tong

Fault Diagnosis for Smart Grid with Uncertainty Information Based on
Data ......................................................................................................... 66
  Qiuye Sun, Zhongxu Li, Jianguo Zhou, and Xue Liang

Sparse Kernel Regression for Traffic Flow Forecasting ......................... 76
  Rongqing Huang, Shiliang Sun, and Yan Liu

Rate-Dependent Hysteresis Modeling and Compensation Using Least
Squares Support Vector Machines ......................................................... 85
  Qingsong Xu, Pak-Kin Wong, and Yangmin Li

Nomogram Visualization for Ranking Support Vector Machine .......... 94
  Nguyen Thi Thanh Thuy, Nguyen Thi Ngoc Vinh, and Ngo Anh Vien
New Multi-class Classification Method Based on the SVDD Model ........................................... 103
   Lei Yang, Wei-Min Ma, and Bo Tian

Intelligence Statistical Process Control in Cellular Manufacturing
   Based on SVM .................................................................................................................. 113
   Shaoxiong Wu

Morlet-RBF SVM Model for Medical Images Classification ......................... 121
   Huiyan Jiang, Xiangying Liu, Lingbo Zhou, Hiroshi Fujita, and Xiangrong Zhou

COD Prediction for SBR Batch Processes Based on MKPCA and
   LSSVM Method ............................................................................................................. 130
   XiaoPing Guo and LiPing Fan

Mixture Models and Clustering

A Fixed-Point EM Algorithm for Straight Line Detection ...................... 136
   Chonglun Fang and Jinwen Ma

A Novel Classifier Ensemble Method Based on Class Weightening in
   Huge Dataset .............................................................................................................. 144
   Hamid Parvin, Behrouz Minaei, Hosein Alizadeh, and Akram Beigi

Network-Scale Traffic Modeling and Forecasting with Graphical
   Lasso .............................................................................................................................. 151
   Ya Gao, Shiliang Sun, and Dongyu Shi

Learning Curve Model for Torpedo Based on Neural Network .................. 159
   Min-quan Zhao, Qing-wei Liang, Shanshan Jiang, and Ping Chen

An Efficient EM Approach to Parameter Learning of the Mixture of
   Gaussian Processes ...................................................................................................... 165
   Yan Yang and Jinwen Ma

Boundary Controller of the Anti-stable Fractional-Order Vibration
   Systems .......................................................................................................................... 175
   Yanzhu Zhang, Xiaoyan Wang, and Yanmei Wang

Stochastic p-Hub Center Problem with Discrete Time Distributions .... 182
   Kai Yang, Yankui Liu, and Xin Zhang

Orthogonal Feature Learning for Time Series Clustering ......................... 192
   Xiaozhe Wang and Leo Lopes

A Text Document Clustering Method Based on Ontology ....................... 199
   Yi Ding and Xian Fu
### Visual Perception and Pattern Recognition

- **Visual Tracking Using Iterative Sparse Approximation**  
  *Huaping Liu, Fuchun Sun, and Meng Gao*  
  207

- **Orientation Representation and Efficiency Trade-off of a Biological Inspired Computational Vision Model**  
  *Yuxiang Jiang and Hui Wei*  
  215

- **The Application of Genetic Algorithm Based Support Vector Machine for Image Quality Evaluation**  
  *Li Cui and Song Yun Xie*  
  225

- **A Gabor Wavelet Pyramid-Based Object Detection Algorithm**  
  *Yasuomi D. Sato, Jenia Jitsev, Joerg Bornschein, Daniela Pamplona, Christian Keck, and Christoph von der Malsburg*  
  232

- **Quality Evaluation of Digital Image Watermarking**  
  *Xinhong Zhang, Fan Zhang, and Yuli Xu*  
  241

- **Ensemble of Global and Local Features for Face Age Estimation**  
  *Wankou Yang, Cuixian Chen, Karl Ricanek, and Changyin Sun*  
  251

- **A Filter Based Feature Selection Approach Using Lempel Ziv Complexity**  
  *Sultan Uddin Ahmed, Md. Fazle Elahi Khan, and Md. Shahjahan*  
  260

- **Finger-Knuckle-Print Recognition Using LGBP**  
  *Ming Xiong, Wankou Yang, and Changyin Sun*  
  270

- **Applying ICA and SVM to Mixture Control Chart Patterns Recognition in a Process**  
  *Chi-Jie Lu, Yuchjen E. Shao, and Chao-Liang Chang*  
  278

- **Gender Classification Using the Profile**  
  *Wankou Yang, Amrutha Sethuram, Eric Patternson, Karl Ricanek, and Changyin Sun*  
  288

- **Face Recognition Based on Gabor Enhanced Marginal Fisher Model and Error Correction SVM**  
  *Yun Xing, Qingshan Yang, and Chengan Guo*  
  296

- **Facial Expression Recognition by Independent Log-Gabor Component Analysis**  
  *Siyao Fu, Xinkai Kuai, and Guosheng Yang*  
  305

- **Learning Hierarchical Dictionary for Shape Patterns**  
  *Xiaobing Liu and Bo Zhang*  
  313
## Motion, Tracking and Object Recognition

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sparse Based Image Classification with Different Keypoints Descriptors</td>
<td>323</td>
</tr>
<tr>
<td><em>Yuanyuan Zuo and Bo Zhang</em></td>
<td></td>
</tr>
<tr>
<td>Where-What Network with CUDA: General Object Recognition and Location in Complex Backgrounds</td>
<td>331</td>
</tr>
<tr>
<td><em>Yuekai Wang, Xiaofeng Wu, Xiaoying Song, Wengqiang Zhang, and Juyang Weng</em></td>
<td></td>
</tr>
<tr>
<td>Fast Human Detection Based on Enhanced Variable Size HOG Features</td>
<td>342</td>
</tr>
<tr>
<td><em>Jifeng Shen, Changyin Sun, Wankou Yang, and Zhongxi Sun</em></td>
<td></td>
</tr>
<tr>
<td>A Novel Local Illumination Normalization Approach for Face Recognition</td>
<td>350</td>
</tr>
<tr>
<td><em>Zhichao Lian, Meng Joo Er, and Juekun Li</em></td>
<td></td>
</tr>
<tr>
<td>Rapid Face Detection Algorithm of Color Images under Complex Background</td>
<td>356</td>
</tr>
<tr>
<td><em>Chuan Wan, Yantao Tian, Hongwei Chen, and Xinzhu Wang</em></td>
<td></td>
</tr>
<tr>
<td>An Improvement Method for Daugmans Iris Localization Algorithm</td>
<td>364</td>
</tr>
<tr>
<td><em>Zhi-yong Peng, Hong-zhou Li, and Jian-ming Liu</em></td>
<td></td>
</tr>
<tr>
<td>Fire Detection with Video Using Fuzzy C-Means and Back-Propagation Neural Network</td>
<td>373</td>
</tr>
<tr>
<td><em>Tung Xuan Truong and Jong-Myon Kim</em></td>
<td></td>
</tr>
<tr>
<td>Multiple Kernel Active Learning for Facial Expression Analysis</td>
<td>381</td>
</tr>
<tr>
<td><em>Siyao Fu, Xinkai Kuai, and Guosheng Yang</em></td>
<td></td>
</tr>
<tr>
<td>Fast Moving Target Detection Based on Gray Correlation Analysis and Background Subtraction</td>
<td>388</td>
</tr>
<tr>
<td><em>Zheng Dang, Songyun Xie, Ge Wang, and Fahad Raza</em></td>
<td></td>
</tr>
<tr>
<td>Shadow Removal Based on Gray Correlation Analysis and Sobel Edge Detection Algorithm</td>
<td>395</td>
</tr>
<tr>
<td><em>Feng Ji, Xinbo Gao, Zheng Dang, and Songyun Xie</em></td>
<td></td>
</tr>
<tr>
<td>Moving Object Detecting System with Phase Discrepancy</td>
<td>402</td>
</tr>
<tr>
<td><em>Qiang Wang, Wenjun Zhu, and Liqing Zhang</em></td>
<td></td>
</tr>
<tr>
<td>Automation of Virtual Interview System Using the Gesture Recognition of Particle Filter</td>
<td>412</td>
</tr>
<tr>
<td><em>Yang Weon Lee</em></td>
<td></td>
</tr>
</tbody>
</table>
Natural Scene Analysis and Speech Recognition

Performance Analysis of Improved Affinity Propagation Algorithm for Image Semantic Annotation ........................................ 420
   \textit{Dong Yang and Ping Guo}

Learning Variance Statistics of Natural Images .......................... 429
   \textit{Libo Ma, Malte J. Rasch, and Si Wu}

Real-Time Joint Blind Speech Separation and Dereverberation in Presence of Overlapping Speakers .......................... 437
   \textit{Rudy Rotili, Emanuele Principi, Stefano Squartini, and Francesco Piazza}

Audio Segmentation and Classification Using a Temporally Weighted Fuzzy C-Means Algorithm .................................... 447
   \textit{Ngoc Thi Thu Nguyen, Mohammad A. Haque, Cheol-Hong Kim, and Jong-Myon Kim}

Extracting Specific Signal from Post-nonlinear Mixture Based on Maximum Negentropy ........................................... 457
   \textit{Dongxiao Ren, Mao Ye, and Yuanxiang Zhu}

A Method to Detect JPEG-Based Double Compression .................. 466
   \textit{Qingzhong Liu, Andrew H. Sung, and Mengyu Qiao}

Semi Supervised Learning for Prediction of Prosodic Phrase Boundaries in Chinese TTS Using Conditional Random Fields ........ 477
   \textit{Ziping Zhao, Xirong Ma, and Weidong Pei}

Singer Identification Using Time-Frequency Audio Feature .......... 486
   \textit{Pafan Doungpaisan}

Robust Multi-stream Keyword and Non-linguistic Vocalization Detection for Computationally Intelligent Virtual Agents .......... 496
   \textit{Martin Wöllmer, Erik Marchi, Stefano Squartini, and Björn Schuller}

Neuromorphic Hardware, Fuzzy Neural Networks and Robotics

On Control of Hopf Bifurcation in a Class of TCP/AQM Networks ...... 506
   \textit{Jianzhi Cao and Haijun Jiang}

State Feedback Control Based on Twin Support Vector Regression Compensating for a Class of Nonlinear Systems ................. 515
   \textit{Chaoxu Mu, Changyin Sun, and Xinghuo Yu}
Genetic Dynamic Fuzzy Neural Network (GDFNN) for Nonlinear System Identification ................................................. 525
   Mahardhika Pratama, Meng Joo Er, Xiang Li, Lin San,
   J.O. Richard, L.-Y. Zhai, Amin Torabi, and Imam Arifin

Adaptive Robust NN Control of Nonlinear Systems ......................... 535
   Guo-Xing Wen, Yan-Jun Liu, and C.L. Philip Chen

A Generalized Online Self-constructing Fuzzy Neural Network ............ 542
   Ning Wang, Yue Tan, Dan Wang, and Shaoman Liu

Adaptive Fuzzy Control of an Active Vibration Isolator ................... 552
   Naibiao Zhou, Kefu Liu, Xiaoping Liu, and Bing Chen

Fuzzy-Adaptive Fault-Tolerant Control of High Speed Train
Considering Traction/Braking Faults and Nonlinear Resistive Forces.... 563
   M.R. Wang, Y.D. Song, Q. Song, and Peng Han

Robust Cascaded Control of Propeller Thrust for AUVs .................... 574
   Wei-lin Luo and Zao-jian Zou

A Developmental Learning Based on Learning Automata .................... 583
   Xiaogang Ruan, Lizhen Dai, Gang Yang, and Jing Chen

Multi-agent Systems and Adaptive Dynamic Programming

Meddler, Agents in the Bounded Confidence Model on Flocking
Movement World ......................................................... 591
   Shusong Li, Shiyong Zhang, and Binglin Dou

Statistical Optimal Control Using Neural Networks ........................ 601
   Bei Kang and Chang-Hee Won

Adaptive Kernel-Width Selection for Kernel-Based Least-Squares
Policy Iteration Algorithm .............................................. 611
   Jun Wu, Xin Xu, Lei Zuo, Zhaobin Li, and Jian Wang

Finite Horizon Optimal Tracking Control for a Class of Discrete-Time
Nonlinear Systems ...................................................... 620
   Qinglai Wei, Ding Wang, and Derong Liu

Optimal Control for a Class of Unknown Nonlinear Systems via the
Iterative GDHP Algorithm ............................................... 630
   Ding Wang and Derong Liu

Author Index ........................................................... 641