1995 International Symposium on Artificial Neural Networks

一九九五國際類神經網路會議

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December 19, Tuesday

**Keynote Speech**

The CNN Universal Chip: A Tera XPS Analogic Supercomputer, Leon O Chua, University of California, Berkeley(USA) [KS1]

**Session A1: Speech Processing**

Chairman: Sheng-De Wang, National Taiwan University(Taiwan)

A1-01 Spoken Digits Recognition Using Learning Vector Quantization, Tomoaki Suzuki, Yoshihisa Ishida, Meiji University(Japan) [A1-01]


A1-11 Automatic Spoken Digits Recognition Using LVQ Clustering, Toshinobu Matsuoka, Mizuno Sakamoto, Tsutomu Ogasawara, Yoshihisa Ishida, Meiji University(Japan) [A1-03]


A1-22 A Recurrent Neural Network Based Finite State Machine for Fast Continuous Mandarin Speech Recognition, Yuan-Fu Liao, Song-Mao Chiang, Saga Chang, Sin-Horng Chen, National Chiao Tung University(Taiwan) [A1-05]

A1-28 Neural Networks for Pattern Pre-processing on Speech Recognition, Sheng-De Wang, Yuan-Hwa Li, Tai-Ning Yang, National Taiwan University(Taiwan) [A1-06]

**Session A2: Applications**

Chairman: Hahn-Ming Lee, National Taiwan Inst. of Tech(Taiwan)

A2-01 High Speed Networks Switch Controller Using Neural Networks, Hsiou-Ping Lin, Yen-Chieh Ouyang, National Chung-Hsing University(Taiwan) [A2-01]

A2-07 An Improved Neural Algorithm for Automatic Test Pattern Generation, Hsien-Leong Tsai, She-Jue Lee, National Sun Yat-Sen University(Taiwan) [A2-02]

A2-13 A Single Layer Neural Network For Lossless Data Compression, Jianmin Jiang, Loughbrough University of Technology(UK) [A2-03]

A2-20 Evaluating Pruning Methods, Georg Thimm, Emile Fiesler, IDIAP(Switzerland), University of Liverpool(UK) [A2-05]

A2-26 Analyzing the Behaviour of a Neural Network Based on a Stochastic Automata, Coskun Akinalp, Anke Meyer-Base, Technical University Darmstadt(Germany) [A2-06]

A2-31 An Application of Neural Networks to Object Identification, M. H. Yu, C. Lee, University of Liverpool(UK) [A2-07]
Session A3: Supervised Learning I

Chairman: Chin-Teng Lin, National Chiao Tung University (Taiwan)

A3-01  A Generalized Inversion Learning Algorithm for Functional Link Nets, C.H. Zhang, J.M.K. MacAlpine, T.P. Leung, Hong Kong Polytechnic University, Q.J. Zhou, South China University of Technology (Hong Kong) [A3-01]

A3-04  Constructing Neural Networks by Building Blocks, Mu-Song Chen, Da-Yeh Institute of Technology, Dar-Der Chen, I-Lan Institute of Agriculture and Technology (Taiwan) [A3-02]

A3-10  Two Adaptive Neural Networks for Image Histogram Processing, Irwin King, The Chinese University of Hong Kong (Hong Kong) [A3-03]

A3-16  Dynamic Programming and Stochastic Approximation for Reinforcement Learning Control Design, Wan-Yu Meng, Industrial Technology Research Institute, Chi-Cheng Jou, National Chiao Tung Univ. (Taiwan) [A3-04]

A3-22  How the Output Delays Help Learning Long-term Dependencies, Tsungnan Lin, Princeton University, Bill G. Horne, NEC Research Institute, Peter Tino, Slovak Technical University, C. Lee Giles, University of Maryland (USA) [A3-05]

A3-28  Improvement to the Barycentric Correction Procedure Sequential Learning, Herve Poulard, Laboratoire d'Analyse et d'Architecture des Systems-CNRS (France) [A3-06]

Invited Talk

IT1-01  Neural Network Techniques for Invariant Recognition and Motion Tracking of 3-D Objects, Jenq-Neng Hwang, University of Washington (USA) [IT1]

Invited Session: Recent Development on the Theory and Application of Neural Networks

Chairmen: Dr. L.W. Chan, the Chinese University of Hong Kong Prof. W.C. Siu, the Hong Kong Polytechnic University (Hong Kong)

IS-01  Improved Real time Recurrent Learning Algorithms: a review and some new approaches, M.W. Mark, Y. L. Lu, K. W. Ku, The Hong Kong Polytechnic University (Hong Kong) [IS-01]

IS-07  New Advances on The YING-YANG Machine, Lei Xu, the Chinese University of Hong Kong (Hong Kong) [IS-02]

IS-13  A Feature Map Algorithm with progressively-softened distance measure, Jones, Yiu Chung Lam, Kwan Fai Cheung, Hong Kong University of Science and Technology (Hong Kong) [IS-03]

IS-18  Neural Networks for Fuzzy Rule based Classifiers, Zheru Chi, The Hong Kong Polytechnic University (Hong Kong) [IS-04]

IS-24  Linearization + Confluent Inference = Efficient Connectionist Representations of Parse Trees for Grammatical Inference, Edward, Kei Shiu Ho, Lai Wan Chan, the Chinese University of Hong Kong (Hong Kong) [IS-05]

IS-32  The Role of Orthogonal Polynomials in Neural Network Applications to System Identification, A.C. Tsoi, The University of Queensland & Hong Kong University, (Australia/Hong Kong), A Back, The University of Queensland (Australia) [IS-06]

IS-38  Neural Networks for Teletraffic routing and Troubleshooting, Michael, K.Y. Wong, Hong Kong University of Science and Technology (Hong Kong) [IS-07]
Session B1: Control System
Chairman: Cheng-Yuan Liou, National Taiwan University (Taiwan)

B1-01 Gaussian Networks for Autonomous Vehicle Path Planning, Gustavo I.E. Cancelo, Miguel A. Mayosky, Roberto J. Vignoni, Universidad Nacional de La Plata (Argentina) [B1-01]

B1-08 A Study of ART's Learning in Detecting Cyclic Fluctuations on Control Charts, H. Brian Hwarng, National University of Singapore (Singapore) [B1-02]

B1-14 Application of Neural Networks to Power System Protection, P. Sowa, W. Winkler, B. Witek, A. Halinka, Silesian Technical University of Gliwice (Poland) [B1-03]

B1-21 A Model-Free Neural Fuzzy Speed Controller for DC Motor Drives, Chen-Ming Hung, Ching-Tsai Pan, National Tsing-Hua University (Taiwan) [B1-04]

B1-27 An Artificial Neural Network for Autonomous Vehicle Freeway Driving, Ming-Yang Chen, Tse-Min Chen, National Chung-Cheng University (Taiwan) [B1-05]

B1-33 Generalized Predictive Control of a Non-linear System Using Neural Networks, Magnus Norgaard, Paul Haase Sorensen, Technical University of Denmark (Denmark) [B1-06]

B1-41 Wavelet Network in System Identification, H.D. Puyosa Pina, L.M. Tomas Balibrea, Universidad de Murcia (Spain) [B1-07]

Session B2: Supervised Learning II
Chairman: Von-Wun Soo, National Tsing Hua University (Taiwan)

B2-01 Enhanced Query-Based Learning for Neural Networks, Shyh-Jier Huang, Kaohsiung Polytechnic Institute (Taiwan), Chuan-Chang Hung, University of Texas at Austin (USA) [B2-01]

B2-07 The Application of MONOCNN to Upper Limb Functions Discrimination, Sheen-Horng Liou, Yuan-Pai Institute of Medical Technology; Kuo-Sheng Cheng, National Cheng Kung University (Taiwan) [B2-02]

B2-13 Training Recurrent Neural Networks to Learn Lexical Encoding and Thematic Role Assignment in Parsing Compound Chinese Sentences, Tung-Bo Chen, Koong H.C Lin, Von-Wun Soo, National Tsing Hua University (Taiwan) [B2-03]

B2-19 Improving the Noisy Feature Detection Capability of Feedforward Cellular Neural Networks by Introducing Don't-Care Template Elements, Iztok Fajfar, University of Ljubljana (Slovenia), Tamas Roska Hungarian Academy of Sciences (Hungary) [B2-04]

B2-25 An Efficient Algorithm for Learning Artificial Neural Networks Subject to Weight Tolerances, M. Conti, S. Orcioni, C. Turchetti, Universita' di Ancona (Italy) [B2-05]

B2-31 Spatiotemporal Function Approximator and Trajectories Discrimination, Daw-Tung Lin, Chung-Hua Polytechnic Institute (Taiwan) [B2-06]

B2-37 Using Meta Neural Networks for Learning Rule Parameter Adaptation, Colin McCormack, University College Cork (Ireland) [B2-07]
December 20, Wednesday

Session C1: Optimization and Genetic Algorithm

Chairman: Chun-Chi Hsu, National Taiwan University (Taiwan)

C1-01 A Novel Annealing Mechanism and the Crew Scheduling Problem, Chun-Chi Lo, Ching-Chi Hsu, National Taiwan University (Taiwan) [C1-01]

C1-07 Integrated Global Genetic-Based Computation Algorithm for Nonlinear Optimization Learning, Ray-Long Sun, Judith E. Dayhoff, William A. Weigand, University of Maryland (USA) [C1-02]

C1-11 Stochastic Learning Automata-based Iterative Learning, T. Yohannes, Naval Undersea Warfare Center (USA) [C1-03]

C1-17 An Empirical Study of Two Approaches to Automated pRAM Network Design, Kwok Ching Tsui, Mark Plumbley, King’s College London (UK) [C1-04]

Session C2: Neural Fuzzy and Knowledge-based System I

Chairman: Gary G. Yen, USAF Phillips Laboratory (USA)

C2-01 Acquisition of Knowledge from Stories: An Empirical Study, Samuel W.K. Chan, University of New South Wales (Australia) [C2-01]

C2-07 Scaled Prototype Categorisation and Bimodal Mental Reasoning, A.F. Nejad, The University of New South Wales (Australia) [C2-02]

C2-13 Cascade Fuzzy Adaptive Hamming Net: An Extensible Database for Object Recognition Systems, Hai-Lung Hung, Wei-Chung Lin, Northwestern University (USA), Shing-Jong Lin, National Central University, Hong-Yuan Mark Liao, Academia Sinica (Taiwan) [C2-03]

C2-19 A Hybrid System as an Intelligent Front End for Knowledge Engineering, Chien-Chang Hsu, Cheng-Seen Ho, National Taiwan Institute of Technology (Taiwan) [C2-04]

C2-26 Intelligent Health Assessment in Rotorcraft Machines, Gary G. Yen, The University of New Mexico (USA) [C2-05]

Session C3: Pattern Recognition

Chairman: I-Chang Jou, Telecommunication Labs. (Taiwan)

C3-01 Higher-Order Polynomial Neural Network for Pattern Classification, Wan-Li Lee, Hsiao-Rong Tyan, Chung-Yuan Christian University, Yao-Tsorng Liu, Academia Sinica (Taiwan) [C3-01]

C3-07 Dynamic Neuron Model and Its Application to Pattern Recognition, Caijin Huang, Xizhi Shi, Donghai Wang, Shanghai Jiao Tong University (China) [C3-02]

C3-13 A Neural Mapping Facility for Spatial/Temporal Pattern Recognition, Quen-Zong Wu, I-Chang Jou, Telecommunication Laboratories, Suh-Yin Lee, National Chiao Tung University (Taiwan) [C3-03]

C3-18 A N-version Scheme with High Noise-Tolerant Capability, Yen-Tseng Hsu, Chien-Ming Chen, Hsin-Chin Yeh, National Taiwan Institute of Technology (Taiwan) [C3-04]

C3-24 Mixture Character Recognition on Chinese Business Cards by Neural Networks, H.C. Fu, Chih-Shen Chen, National Chiao-Tung University (Taiwan) [C3-05]
Session D1: Unsupervised Learning I

Chairman: Jar-Ferr Yang, National Cheng Kung University(Taiwan)

D1-01 Optimization by Self-Organizing Minimum-Connection Network, Wen-Pin Tai, National Taiwan University(Taiwan) [D1-01]
D1-07 Model of Case Memory Restructuring by Feature Map and Teacher Signal, Masaya Emura, Takashi Omori, Tokyo University of Agriculture and Technology(Japan) [D1-02]
D1-11 Using Unsupervised Learning Technique of Self Organizing Maps to Extract Knowledge from Databases, M. Ranjit Murthy, R Sadananda, Sushil Acharya, Asian Institute of Technology(Thailand) [D1-03]
D1-17 A Fast Winner-Take-All Neural Network, Chi-Ming Chen, Jar-Ferr Yang, National Cheng Kung University(Taiwan) [D1-04]
D1-23 A New Global Stability Criterion for Competitive Neural Networks with Different Time-Scales, Anke Meyer-Base, Institute of Digital Technics, Frank Ohl, Henning Scheich, Federal Institute for Neurobiology(Germany) [D1-05]

Session D2: Neural Fuzzy and Knowledge-based System II

Chairman: Chuen-Tsai Sun, National Chiao Tung University(Taiwan)

D2-01 A Neuro-Fuzzy Approach to Extracting Rules for Syllabic Labelling of Continuous Speech, Mu-Chun Su, Ching-Tang Hsieh, Hua-Chiao Yu, Shieh-Chieh Chieh, Tamkang University(Taiwan) [D2-01]
D2-07 A Fuzzy Neural Network Classifier with Fuzzy Teaching Inputs and Multiclass Outputs, Kuo-Hsiu Chen, Hong-Ling Chen, Hahn-Ming Lee, National Taiwan Institute of Technology(Taiwan) [D2-02]
D2-13 A Reinforcement Fuzzy Neural Network Model with Distributed Prediction Scheme, Cheng-Wen Wang, Jang-Pong Hsu, Yau-Hwang Kuo, National Cheng Kung University(Taiwan) [D2-03]
D2-18 A Fuzzification Layer for Back-Propagation Networks, Hui-Huang Hsu, LiMin Fu, University of Florida(USA) [D2-04]
D2-24 A Fuzzy CMAC Model for Color Correction, Chao-Chih Hsu, Jar-Shone Ker, Yau-Hwang Kuo, National Cheng Kung University(Taiwan) [D2-05]

Session D3: Image Processing and Computer Vision I

Chairman: Chwan-Hwa "Jhon" Wu, Auburn University(USA)

D3-01 Digit Recognition Using Fuzzy Decision Neural Networks, J.S. Taur, National Chung Hsing University, C.W. Tao, National I-Lan Institute of Agriculture and Technology(Taiwan) [D3-01]
D3-07 An Integrated Classifier of Modularized Neural Networks: A Case Study on Handwritten Numerals Recognition, Gang-Soo Ryu, Kumi Junior College, Sung-II Chien, Kyungpook National University(Korea) [D3-02]
D3-13 Comparative Study of Feature Sets Used in the Recognition of Chinese Handwritten Characters, Yih-Ming Su, C. L. Chen, Kaohsiung Polytechnic Institute, Jhing-Fa Wang, National Cheng Kung University(Taiwan) [D3-03]

D3-19 Image Compression by Neural Networks, Mang Cao, Chein-I Chang, University of Maryland(USA) [D3-04]

D3-25 A Fuzzy Approach to Recognize Handwritten Chinese Characters by Unit Extraction, Zheng "David" Luo, Chwan-Hwa "John" Wu, Auburn University(USA) [D3-05]

Session E1: Unsupervised Learning II
Chairman: Sheng-Fuu Lin, National Chiao Tung University(Taiwan)

E1-01 On the Weight Initialization of Kohonen's Neural Networks, Shyh-Jier Huang, Rey-Chue Hwang, Kaohsiung Polytechnic Institute(Taiwan) [E1-01]

E1-07 Properties of Learning in the Multiple-Valued Adaptive Hamming Net, Sheng-Fuu Lin, Cheng-An Hung, National Chiao Tung University(Taiwan) [E1-02]

E1-11 Robust Control Using Unsupervised Neural Networks Learning for SISO System, Tohru Miyagawa, Kazunori Kadowaki, Hiroshi Tsuji, Yoshihisa Ishida, Meiji University(Japan) [E1-03]

E1-17 The Learning Algorithms for Time-Lag Recurrent Radial Basis Function Neural Networks, Lin-En Kuo, Yuan-Pai Institute of Medical Technology (Taiwan), Stephen S. Melsheimer, Clemson University(USA) [E1-04]

E1-23 Local Smoothing of Radial Basis Function Networks, Mark J.L. Orr, Edinburgh University(UK) [E1-05]

Session E2: Electrical Neuro Computer
Chairman: Ching Lee, University of Liverpool(UK)

E2-01 Slicing Inverse Regression for Neural Network Architecture Selection, Jen-Lun Yuan, National Chung-Hsing Univ.(Taiwan); Terrence L. Fine, Cornell University(USA) [E2-01]

E2-07 A Learning Method for An Adaptive Fuzzy Inference Chip, Jer Min Jou, Pei-Yin Chen, National Cheng Kung University(Taiwan) [E2-02]

E2-13 Digital Neural Network with Dual Phase and Distributed Arithmetic Structure, In-Jung Park, Dan-Kook University(Korea) [E2-03]

E2-19 A Parallel Implementation of BP Neural Network on a Multiple Processor System, Huiwei Guan, Chi-Kwong Li, Hong Kong Polytechnic University(Hong Kong) [E2-04]

E2-25 CMOS Implementation of Analog Back Propagation Learning for Approximate Identity Neural Networks, M.Conti, S.Orcioni, C.Turchetti, Universita' di Ancona(Italy) [E2-05]

E2-31 CMOS Circuit Implementation to Control Chaotic Neurons, Charles C. Hsu, Micro Star Co., Mona Zaghloul, the George Washington University, Harold Szu, the University of S. Louisiana At Lafayette(USA) [E2-06]
Session E3: Image Processing and Computer Vision II

Chairman: Pau-Choo Chung, National Cheng Kung University (Taiwan)

E3-01 Integrating Autoregressive Modeling and Neural Networks for Object Recognition, Jen-Ming Chen, National Central University (Taiwan) [E3-01]

E3-07 The Application of Fuzzy Neural Network to Medical Image Segmentation, Kuo-Sheng Cheng, Jzau-Sheng Lin, Chi-Wu Mao, National Cheng Kung University (Taiwan) [E3-02]

E3-13 A Gray Level Hamming net for Gray Level Image Classification, Chii-Maw Uang, Wei-Feng Lin, Chinese Air Force Academy (Taiwan) [E3-03]

E3-20 A Spatiotemporal Neural Network for the Recognition of Partially Occluded Objects, E-Liang Chen, Pau-Choo Chung, Jia-Bin Wu, National Cheng Kung University (Taiwan) [E3-04]

E3-26 Automatic System to Quality Control: Using Artificial Vision and Neural Nets for Classification of Marble Slabs in Production Line., P. Clemente-Perez, V. Garceroan-Hernandez, H.D. Puyosa-Pina, L.M. Tomas-Balibrea, Universidad de Murica (Spain) [E3-05]

E3-32 Probabilistic DBNN Biometric Identification System with Application to Face Recognition, Shang-Hung Lin, S.Y. Kung, Princeton University (USA) [E3-06]

Invited Talk

New Development in Neural Network Research: Network Combination and Active Learning, Yu-Hen Hu, University of Wisconsin-Madison (USA) [IT3]

Session F1: Prediction and Forecasting

Chairman: Shaun-inn Wu, College of Arts and Sciences (USA)

F1-01 Enhanced Layered Perceptrons for Taiwan Power System Short Term Load Forecasting, Shyh-Jier Huang, Kaohsiung Polytechnic Institute, Ching-Lien Huang, National Cheng Kung University (Taiwan) [F1-01]

F1-07 Power System Load Forecasting by Recurrent Neural Network with a Dynamic Modified Learning Rule, Rey-Chue Hwang, Shyh-Jier Huang, Kaohsiung Polytechnic Institute, Huang-Chu Huang, Kaohsiung Institute of Marine Technology, Sy-Ruen Huang, Feng Chia University (Taiwan) [F1-02]

F1-13 Short-Term Weather Forecasting by an Artificial Recurrent Neural Network Technology, Rey-Chue Hwang, Shyh-Jier Huang, Kaohsiung Polytechnic Institute, Huang-Chu Huang, Kaohsiung Institute of Marine Technology, Sy-Ruen Huang, Feng Chia University (Taiwan) [F1-03]

F1-20 Automating Auto-Regressive Forecasting with a Recurrent Neural Network, Shaun-inn Wu, California State University (USA) [F1-04]

F1-26 Variance-based Combination of Estimators trained by Bootstrap Replicates, Michiaki Taniguchi, Volker Tresp, Siemens AG Central Research (Germany) [F1-05]
Session F2: Associative Memory

Chairman: Jyh-Yeong Chang, National Chiao Tung University (Taiwan)

F2-01 Optimum Robustness Learning for Bidirectional Associative Memories, Donq-Liang Lee, Wen-June Wang, National Central University (Taiwan) [F2-01]

F2-07 Generalization of the Bidirectional Associative Memory to Permit Complex Weights, Donq-Liang Lee, Wen-June Wang, National Central University (Taiwan) [F2-02]

F2-13 Realization of Asymptotically Stable Multi-Valued Exponential Bidirectional Associative Memory by Current-mode VLSI Circuit, Chua-Chin Wang, Yung-Chih Chen, National Sun Yat-Sen University (Taiwan) [F2-03]

F2-19 Adaptive Local Training Algorithm for Associative Memory Design, Jyh-Yeong Chang, Jeng-Yi Chang, National Chiao Tung University (Taiwan) [F2-04]