

Contents – Part I

Deep and Reinforcement Learning

Emotion Prediction from User-Generated Videos by Emotion Wheel Guided Deep Learning.	3
<i>Che-Ting Ho, Yu-Hsun Lin, and Ja-Ling Wu</i>	
Deep Q-Learning with Prioritized Sampling	13
<i>Jianwei Zhai, Quan Liu, Zongzhang Zhang, Shan Zhong, Haijun Zhu, Peng Zhang, and Cijia Sun</i>	
Deep Inverse Reinforcement Learning by Logistic Regression	23
<i>Eiji Uchibe</i>	
Parallel Learning for Combined Knowledge Acquisition Model	32
<i>Kohei Henmi and Motonobu Hattori</i>	
Emergence of Higher Exploration in Reinforcement Learning Using a Chaotic Neural Network.	40
<i>Yuki Goto and Katsunari Shibata</i>	

Big Data Analysis

Establishing Mechanism of Warning for River Dust Event Based on an Artificial Neural Network	51
<i>Yen Hsun Chuang, Ho Wen Chen, Wei Yea Chen, and Ya Chin Teng</i>	
Harvesting Multiple Resources for Software as a Service Offers: A Big Data Study	61
<i>Asma Musabah Alkalbani, Ahmed Mohamed Ghamry, Farookh Khadeer Hussain, and Omar Khadeer Hussain</i>	
Cloud Monitoring Data Challenges: A Systematic Review	72
<i>Asif Qumer Gill and Sarhang Hevary</i>	
Locality-Sensitive Linear Bandit Model for Online Social Recommendation . . .	80
<i>Tong Zhao and Irwin King</i>	
An Online-Updating Approach on Task Recommendation in Crowdsourcing Systems	91
<i>Man-Ching Yuen, Irwin King, and Kwong-Sak Leung</i>	

Neural Data Analysis

Rhinal-Hippocampal Information Flow Reverses Between Memory Encoding and Retrieval	105
<i>Juergen Fell, Tobias Wagner, Bernhard P. Staresina, Charan Ranganath, Christian E. Elger, and Nikolai Axmacher</i>	
Inferred Duality of Synaptic Connectivity in Local Cortical Circuit with Receptive Field Correlation	115
<i>Kohei Watanabe, Jun-nosuke Teramae, and Naoki Wakamiya</i>	
Identifying Gifted Thinking Activities Through EEG Microstate Topology Analysis	123
<i>Li Zhang, Mingna Cao, and Bo Shi</i>	
Representation of Local Figure-Ground by a Group of V4 Cells	131
<i>M. Hasuike, Y. Yamane, H. Tamura, and K. Sakai</i>	
Dynamic MEMD Associated with Approximate Entropy in Patients' Consciousness Evaluation.	138
<i>Gaochao Cui, Qibin Zhao, Toshihisa Tanaka, Jianting Cao, and Andrzej Cichocki</i>	

Robotics and Control

Neural Dynamic Programming for Event-Based Nonlinear Adaptive Robust Stabilization.	149
<i>Ding Wang, Hongwen Ma, Derong Liu, and Huidong Wang</i>	
Entropy Maximization of Occupancy Grid Map for Selecting Good Registration of SLAM Algorithms.	158
<i>Daishiro Akiyama, Kazuya Matsuo, and Shuichi Kurogi</i>	
Analysis of an Intention-Response Model Inspired by Brain Nervous System for Cognitive Robot	168
<i>Jae-Min Yu and Sung-Bae Cho</i>	
Dynamic Surface Sliding Mode Algorithm Based on Approximation for Three-Dimensional Trajectory Tracking Control of an AUV	177
<i>Kai Zhang, Tieshan Li, Yuqi Wang, and Zifu Li</i>	

Bio-Inspired/Energy-Efficient Information Processing: Theory, Systems, Devices

Exploiting Heterogeneous Units for Reservoir Computing with Simple Architecture	187
<i>Gouhei Tanaka, Ryosho Nakane, Toshiyuki Yamane, Daiju Nakano, Seiji Takeda, Shigeru Nakagawa, and Akira Hirose</i>	

Graceful Degradation Under Noise on Brain Inspired Robot Controllers.	195
<i>Ricardo de Azambuja, Frederico B. Klein, Martin F. Stoelen, Samantha V. Adams, and Angelo Cangelosi</i>	
Dynamics of Reservoir Computing at the Edge of Stability	205
<i>Toshiyuki Yamane, Seiji Takeda, Daiju Nakano, Gouhei Tanaka, Ryosho Nakane, Shigeru Nakagawa, and Akira Hirose</i>	
Hybrid Gravitational Search Algorithm with Swarm Intelligence for Object Tracking	213
<i>Henry Wing Fung Yeung, Guang Liu, Yuk Ying Chung, Eric Liu, and Wei-Chang Yeh</i>	
Photonic Reservoir Computing Based on Laser Dynamics with External Feedback	222
<i>Seiji Takeda, Daiju Nakano, Toshiyuki Yamane, Gouhei Tanaka, Ryosho Nakane, Akira Hirose, and Shigeru Nakagawa</i>	
FPGA Implementation of Autoencoders Having Shared Synapse Architecture	231
<i>Akihiro Suzuki, Takashi Morie, and Hakan Tamukoh</i>	
Time-Domain Weighted-Sum Calculation for Ultimately Low Power VLSI Neural Networks	240
<i>Quan Wang, Hakan Tamukoh, and Takashi Morie</i>	
A CMOS Unit Circuit Using Subthreshold Operation of MOSFETs for Chaotic Boltzmann Machines	248
<i>Masatoshi Yamaguchi, Takashi Kato, Quan Wang, Hideyuki Suzuki, Hakan Tamukoh, and Takashi Morie</i>	
An Attempt of Speed-up of Neurocommunicator, an EEG-Based Communication Aid	256
<i>Ryohei P. Hasegawa and Yoshiko Nakamura</i>	
Computational Performance of Echo State Networks with Dynamic Synapses	264
<i>Ryota Mori, Gouhei Tanaka, Ryosho Nakane, Akira Hirose, and Kazuyuki Aihara</i>	
Whole Brain Architecture: Toward a Human Like General Purpose Artificial Intelligence	
Whole Brain Architecture Approach Is a Feasible Way Toward an Artificial General Intelligence.	275
<i>Hiroshi Yamakawa, Masahiko Osawa, and Yutaka Matsuo</i>	

Learning Visually Guided Risk-Aware Reaching on a Robot Controlled by a GPU Spiking Neural Network	282
<i>Terence D. Sanger</i>	
Regularization Methods for the Restricted Bayesian Network BESOM.	290
<i>Yuuji Ichisugi and Takashi Sano</i>	
Representation of Relations by Planes in Neural Network Language Model . . .	300
<i>Takuma Ebisu and Ryutaro Ichise</i>	
Modeling of Emotion as a Value Calculation System.	308
<i>Takashi Omori and Masahiro Miyata</i>	
The Whole Brain Architecture Initiative.	316
<i>Naoya Arakawa and Hiroshi Yamakawa</i>	
Neural Network for Quantum Brain Dynamics: 4D $CP^1+U(1)$ Gauge Theory on Lattice and Its Phase Structure	324
<i>Shinya Sakane, Takashi Hiramatsu, and Tetsuo Matsui</i>	
BriCA: A Modular Software Platform for Whole Brain Architecture	334
<i>Kotone Itaya, Koichi Takahashi, Masayoshi Nakamura, Moriyoshi Koizumi, Naoya Arakawa, Masaru Tomita, and Hiroshi Yamakawa</i>	
An Implementation of Working Memory Using Stacked Half Restricted Boltzmann Machine: Toward to Restricted Boltzmann Machine-Based Cognitive Architecture	342
<i>Masahiko Osawa, Hiroshi Yamakawa, and Michita Imai</i>	
A Game-Engine-Based Learning Environment Framework for Artificial General Intelligence: Toward Democratic AGI	351
<i>Masayoshi Nakamura and Hiroshi Yamakawa</i>	
Neurodynamics	
Modeling Attention-Induced Reduction of Spike Synchrony in the Visual Cortex	359
<i>Nobuhiko Wagatsuma, Rüdiger von der Heydt, and Ernst Niebur</i>	
A Robust TOA Source Localization Algorithm Based on LPNN.	367
<i>Hao Wang, Ruibin Feng, and Chi-Sing Leung</i>	
Reward-Based Learning of a Memory-Required Task Based on the Internal Dynamics of a Chaotic Neural Network.	376
<i>Toshitaka Matsuki and Katsunari Shibata</i>	

Roles of Gap Junctions in Organizing Traveling Waves in a Hippocampal CA3 Network Model	384
<i>Toshikazu Samura, Yutaka Sakai, Hatsuo Hayashi, and Takeshi Aihara</i>	
Towards Robustness to Fluctuated Perceptual Patterns by a Deterministic Predictive Coding Model in a Task of Imitative Synchronization with Human Movement Patterns	393
<i>Ahmadreza Ahmadi and Jun Tani</i>	
Image Segmentation Using Graph Cuts Based on Maximum-Flow Neural Network	403
<i>Masatoshi Sato, Hideharu Toda, Hisashi Aomori, Tsuyoshi Otake, and Mamoru Tanaka</i>	
Joint Routing and Bitrate Adjustment for DASH Video via Neuro-Dynamic Programming in SDN	413
<i>Kunjie Zhu, Junchao Jiang, Bowen Yang, Weizhe Cai, and Jian Yang</i>	
Stability of Periodic Orbits in Dynamic Binary Neural Networks with Ternary Connection	421
<i>Kazuma Makita, Ryuji Sato, and Toshimichi Saito</i>	
Evaluation of Chaotic Resonance by Lyapunov Exponent in Attractor-Merging Type Systems	430
<i>Sou Nobukawa, Haruhiko Nishimura, and Teruya Yamanishi</i>	
Bioinformatics	
Clustering-Based Weighted Extreme Learning Machine for Classification in Drug Discovery Process	441
<i>Wasu Kudisthalert and Kitsuchart Pasupa</i>	
Metabolite Named Entity Recognition: A Hybrid Approach	451
<i>Wutthipong Kongburan, Praisan Padungweang, Worarat Krathu, and Jonathan H. Chan</i>	
Improving Strategy for Discovering Interacting Genetic Variants in Association Studies	461
<i>Suneetha Uppu and Aneesh Krishna</i>	
Improving Dependency Parsing on Clinical Text with Syntactic Clusters from Web Text	470
<i>Xiuming Qiao, Hailong Cao, Tiejun Zhao, and Kehai Chen</i>	
Exploiting Temporal Genetic Correlations for Enhancing Regulatory Network Optimization	479
<i>Ahammed Sherief Kizhakkethil Youseph, Madhu Chetty, and Gour Karmakar</i>	

Biomedical Engineering

Sleep Stage Prediction Using Respiration and Body-Movement Based on Probabilistic Classifier.	491
<i>Hirotaka Kaji, Hisashi Iizuka, and Mitsuo Hayashi</i>	
Removing Ring Artifacts in CBCT Images Using Smoothing Based on Relative Total Variation	501
<i>Qirun Huo, Jianwu Li, Yao Lu, and Ziyi Yan</i>	
Proposal of a Human Heartbeat Detection/Monitoring System Employing Chirp Z-Transform and Time-Sequential Neural Prediction.	510
<i>Ayşe Ece Bezer and Akira Hirose</i>	
Fast Dual-Tree Wavelet Composite Splitting Algorithms for Compressed Sensing MRI.	517
<i>Jianwu Li, Jinpeng Zhou, Qiang Tu, Javaria Ikram, and Zhengchao Dong</i>	
Implementation of a Modular Growing When Required Neural Gas Architecture for Recognition of Falls.	526
<i>Frederico B. Klein, Karla Štěpánová, and Angelo Cangelosi</i>	

Data Mining and Cybersecurity Workshop

Botnet Detection Using Graphical Lasso with Graph Density	537
<i>Chansu Han, Kento Kono, Shoma Tanaka, Masanori Kawakita, and Jun'ichi Takeuchi</i>	
The Usability of Metadata for Android Application Analysis	546
<i>Takeshi Takahashi, Tao Ban, Chin-Wei Tien, Chih-Hung Lin, Daisuke Inoue, and Koji Nakao</i>	
Preserving Privacy of Agents in Reinforcement Learning for Distributed Cognitive Radio Networks	555
<i>Geong Sen Poh and Kok-Lim Alvin Yau</i>	
Campus Wireless LAN Usage Analysis and Its Applications	563
<i>Kensuke Miyashita and Yuki Maruno</i>	
MDL Criterion for NMF with Application to Botnet Detection	570
<i>Shoma Tanaka, Yuki Kawamura, Masanori Kawakita, Noboru Murata, and Jun'ichi Takeuchi</i>	
A Brief Review of Spin-Glass Applications in Unsupervised and Semi-supervised Learning	579
<i>Lei Zhu, Kazushi Ikeda, Paul Pang, Ruibin Zhang, and Abdolhossein Sarrafzadeh</i>	

Learning Latent Features with Infinite Non-negative Binary Matrix Tri-factorization	587
<i>Xi Yang, Kaizhu Huang, Rui Zhang, and Amir Hussain</i>	
A Novel Manifold Regularized Online Semi-supervised Learning Algorithm.	597
<i>Shuguang Ding, Xuanyang Xi, Zhiyong Liu, Hong Qiao, and Bo Zhang</i>	
Learning from Few Samples with Memory Network	606
<i>Shufei Zhang and Kaizhu Huang</i>	
Generalized Compatible Function Approximation for Policy Gradient Search	615
<i>Yiming Peng, Gang Chen, Mengjie Zhang, and Shaoning Pang</i>	
A Combo Object Model for Maritime Boat Ramps Traffic Monitoring	623
<i>Jing Zhao, Shaoning Pang, Bruce Hartill, and Abdolhossein Sarrafzadeh</i>	
Erratum to: Towards Robustness to Fluctuated Perceptual Patterns by a Deterministic Predictive Coding Model in a Task of Imitative Synchronization with Human Movement Patterns	E1
<i>Ahmadreza Ahmadi and Jun Tani</i>	
Author Index	631

Neural Information Processing

23rd International Conference, ICONIP 2016, Kyoto,
Japan, October 16–21, 2016, Proceedings, Part I

Akira, H.; Seiichi, O.; Doya, K.; Kazushi, I.; Minho, L.;
Derong, L. (Eds.)

2016, XIX, 639 p. 250 illus., Softcover

ISBN: 978-3-319-46686-6