

Table of Contents

MACHINE LEARNING THEORY & METHODS

01-061	Pseudo-label Selection for Deep Semi-supervised Learning	1
	<i>Shuangshuang Li, Zhihui Wei, Jun Zhang and Liang Xiao</i>	
02-093	Label Noise Filtering Based on Data Distribution and Relative Density	6
	<i>Hang Liu, Shuai Bian, Chi Liu, Yong Qiu, Daizhi Lang, Zhiwen Liu and Jianjun Lei</i>	
03-038	Training Dendritic Neuron Model with Whale Optimization Algorithm for Classification	11
	<i>Zhenyu Han, Jiarui Shi, Yuki Todo and Shangce Gao</i>	
04-042	Distributed Algorithm for Principal Component Analysis Based on Power Method and Average Consensus Algorithm	16
	<i>Norikazu Takahashi, Mutsuki Oura and Tsuyoshi Migita</i>	
05-046	Fast-PPO: Proximal Policy Optimization with Optimal Baseline Method	22
	<i>Zhu Xiao, Ning Xie, Guobiao Yang and Zhenjiang Du</i>	
06-007	Single Dendritic Neuron Model Trained by Spherical Search Algorithm For Classification	30
	<i>Jia Yu, Jiarui Shi, Zhen Li, Houtian He and Shangce Gao</i>	
07-057	Improved Whale Optimization Algorithm via Cellular Automata	34
	<i>Yuchao Gao, Cheng Qian, Zhenghang Tao, Hu Zhou, Jinran Wu and Yang Yang</i>	
08-033	TransRESCAL: A Dense Feature Model for Knowledge Graph Completion	40
	<i>Panfeng Chen, Yisong Wang, Quan Yu and Qing Fan</i>	
09-067	Uncertain Ontology Embeddings	47
	<i>Khaoula Boutouhami, Guilin Qi, Qiu Ji, Jiatao Zhang and Huan Gao</i>	

IMAGE PROCESSING

11-012	A Visualized Detection Method of Traffic Anomaly based on Feature Dimension Superposition	52
	<i>Zhen Xu</i>	
12-003	Joint Nonlocal Low Rank and High-order Total Variation Priors for Multiplicative Noise Removal	57
	<i>Shuai Li and Pengfei Liu</i>	
13-009	Functional Connectivity Based Classification of ADHD Using Different Atlases	62
	<i>Sartaj Ahmed Salman, Zhichao Lian, Marva Saleem and Yuduo Zhang</i>	

14-010	Spatial Attention-based Efficiently Features Fusion Network for 3D-MR Brain Tumor Segmentation	67
	<i>Yufeng Nie, Hui Ding, Yuanyuan Shang, Zhuhong Shao and Tie Liu</i>	
15-022	Infrared Dim-small Object Detection Algorithm Based on Saliency Map Combined with Target Motion Feature	75
	<i>Wenwen Zhang and Zhichao Lian</i>	
16-028	DenseNet Matting Algorithm Based on Embedded Improved SKNet	80
	<i>Yanlong Xu, Hui Fan and Jinjiang Li</i>	
17-029	A Content-based Intelligent Mobile Video Censoring System	85
	<i>Jing Wang, Chenyu Yuan, Yao Liu, Yuxuan Lin and Jian Liang</i>	
18-037	Bayesian Matrix Factorization for Visual Tracking	89
	<i>Jun Wang, Zhanghua Wang, Shuaibin Xi, Yuanyun Wang, Chengguang Xu and Jun Zhang</i>	
19-043	New Water Extraction Method From Landsat Remote Sensing Image Based on Band Characteristics	94
	<i>Lili Zhang, Yu Fan, Huibin Wang, Gaoxu Wang and Jun Chen</i>	
20-044	Airport Target Detection Based on Deep Learning in Remote Sensing Image	99
	<i>Zhenzhu Bian, Zhen Hua and Jinjiang Li</i>	
21-047	Classification of Mammography based on Semi-supervised Learning	104
	<i>Lilei Sun, Jie Wen, Junqian Wang, Yong Zhao and Yong Xu</i>	
22-050	Joint Optimization of CycleGAN and CNN Classifier for COVID-19 Detection and Biomarker Localization	112
	<i>Shaojuan Dong and Ziyue Zhang</i>	
23-052	Fast Grouped High-order SVD Method for Poisson Noise Removal in Video Sequential Images	119
	<i>Jiajun Fu and Jun Zhang</i>	
24-053	Accelerate Randomized Low Dimensional Manifold Method for Image Reconstruction	124
	<i>Ruifeng Hu and Jun Zhang</i>	
25-054	Exponential Family Graph Signal Recovery under Structural Constraints	129
	<i>Xiangxiang Qiu, Jun Zhang and Zhihui Wei</i>	
26-055	Personalized Learning Design of Ideology and Politics of Distance Education Courses Based on Big Data	135
	<i>Junyan Zhao, Xubiao Yang, Qian Qiao and Liqiong Chen</i>	
27-059	Face Recognition Based on Multi-source Superpixel Fusion	140
	<i>Xiaoxiang Xu, Fanzhang Li and Li Zhang</i>	

28-060	Recognition of Child Congenital Heart Disease using Electrocardiogram based on Residual of Residual Network	145
	<i>Yunmei Du, Shuai Huang, Canhui Huang, Allam Maalla and Huiying Liang</i>	
29-090	Estimate Depth Information from Monocular Infrared Images Based on Deep Learning	149
	<i>Xu Li, Meng Ding, Donghui Wei, Xiaozhou Wu and Yunfeng Cao</i>	
30-092	Remote Sensing Image Scene Classification Based on Gated Pyramidal Convolution	154
	<i>Hang Liu, Shuai Bian, Zhengang Wang, Bing Liu, Qiang Hu and Dongen Guo</i>	
31-094	Robust RGB-T tracking via Bimodal Constrained Correlation Filtering	159
	<i>Xin Li, Jun Cai, Wan Ding and Zhi Fang</i>	
32-129	Hyperspectral Image Denoising Based on Non-convex Low-rank Regularization in Tensor Transform Domain	163
	<i>Binbin Xu and Hongyi Liu</i>	
33-078	Optical Fiber Defects Detection Based on Gabor Filter	168
	<i>Ruiqi Zha, Xibei Jia, Jingze Li and Zhichao Lian</i>	
34-115	An Improved Adversarial Example Generating Method With Optimized Spatial Transfrom	173
	<i>Chaochao Li, Yu Yang, Jialin Lin and Rui Zhan</i>	
35-116	Adversarial Attacks For Multi Target Image Translation Networks	179
	<i>Zigang Fang, Yu Yang, Jialin Lin and Rui Zhan</i>	
36-120	Strength and Similarity Guided GSR Based Network to Diagnose ADHD	185
	<i>Marva Saleem, Zhichao Lian, Sartaj Ahmed Salman, Iqra Tabassum, Laila Tul Badar and Ali Zakir</i>	
37-122	Research on Environmental Target Image Recognition Method of Coal Mine Rescue Autonomous Robot	190
	<i>Gu Gong and Hua Zhu</i>	
38-128	Registration of Chest Radiographs Using A Diffeomorphic Demons Based Method	195
	<i>Iqra Tabassum, Li Min, Ayesha Shafique and Marva Saleem</i>	
MULTI-MEDIA & HUMAN-COMPUTER INTERACTION		
40-039	Spectral Norm Normalized Network for Facial Expression Generation	202
	<i>Jia Zhang, Xiao Yao, Yunlu Zhang, Ning Xu and Xiaofeng Liu</i>	
41-070	Towards Factor-oriented Understanding of Video Game Genres using Exploratory Factor Analysis on Steam Game Tags	207
	<i>Xiaozhou Li</i>	

42-080	User Experience Research on Product Design Evaluation based on Virtual Reality Prototyping	214
	<i>Lufang Zhang, Xiayi Dai, Xingyu Xu, Gaoyan Shi and Zhichuan Tang</i>	
43-084	Cognitive Images for the Visual Analysis of the States of Complex Objects in Relation to the Space Industry	219
	<i>Yulia Emelyanova and Vyacheslav Khachumov</i>	
44-108	A Flexible Meal Aid Robotic Arm System Based on SSVEP	226
	<i>Zuo Chen, Jialing Li, Yujie Liu and Pingchuan Tang</i>	
45-113	An End-to-End Basis-Spline Based Text Spotting Network for Scene Text	231
	<i>Ningli Xu and Zhichao Lian</i>	
46-021	Injecting Affective Computing into Online Virtual Training Through FPS Games	236
	<i>Kaiyu Dai, Xin Wang, Daixin Dai and Rui Zhang</i>	

NATURAL LANGUAGE PROCESSING

48-005	A Question Answering System of Ethnic Minorities Based on Knowledge Graph	243
	<i>Jiayi Li, Shuang Liu, Hui Yang and Simon Kolmanič</i>	
49-015	Quantum Entanglement Based Sentence Similarity Computation	250
	<i>Yan Yu, Dong Qiu and Ruiteng Yan</i>	
50-027	A Content-based Intelligent Label Classification System for Warehouse Management	258
	<i>Zaipeng Xie, Yuxuan Lin, Cheng Ji, Weiyi Zhao and Yao Liu</i>	
51-073	Complex Question Decomposition Method: Based on Fine-grained Named Entity Recognition and Domain Knowledge	263
	<i>Chunhui He, Zhen Tan, Bin Ge, Chong Zhang and Zonglin Shi</i>	
52-076	PNS2E: A POS-Based Grammatical Error Correction Model with Pre-Correction and Post-Selection	268
	<i>Yang Cao, Yinglin Wang</i>	
53-100	An Evaluation of Neural Machine Translation and Pre-trained Word Embeddings in Multilingual Neural Sentiment Analysis	274
	<i>George Manias, Argyro Mavrogiorgou, Athanasios Kiourtis and Dimosthenis Kyriazis</i>	

BIG DATA & PERVASIVE COMPUTING

55-068	Identifying the Development Trend of ARM-based Server Ecosystem Using Linux Kernels	284
	<i>Zhuoyao Wang, Changguo Guo, Zhipeng Fu and Shazhou Yang</i>	

56-071	Multiuser Robust Transceiver Design for Indoor VLC with Noisy Channel State Information	289
	<i>Junzheng Zhang, Ke Ke and Jiawei Ren</i>	
57-088	Optimizing Schedule Length for DAG Type Applications with Energy Consumption Constraint in Heterogeneous Computing Systems	294
	<i>Yu He, Jinchao Chen, Chenglie Du and Pengcheng Han</i>	
58-091	Intelligent Window Control System Design Based on Single Chip Microcomputer	300
	<i>Zhao Sun, Shuyi Wei and Xiuxia Zhang</i>	
59-105	Block Proposer Election Method Based on Verifiable Random Function in Consensus Mechanism	304
	<i>Hui Wang and Wenan Tan</i>	
60-106	Genetic Algorithm based Intrusion Detection System for Software-Defined Network Architecture	309
	<i>Xuejian Zhao, Songle Chen, Yunfeng Yu and Zhixin Sun</i>	
61-112	An Effective Statistical Test Suite for Pseudorandom number Generators in Digital Signatures and Security Robustness Evaluation including a Wavelet Test for Randomness	314
	<i>Dimitrios Karras</i>	
62-074	A Secure and Efficient Data Transmission Scheme for Edge Devices in Smart Grids	323
	<i>Huijian Wang, Hang Yu, Haijie Zheng, Gaozhou Wang, Cong Wang and Beibei Li</i>	
63-082	DDoS Attack Detection Based on Random Forest	328
	<i>Yini Chen, Jun Hou, Qianmu Li and Huaqiu Long</i>	
64-087	Machine Learning-Based Threat Identification of Industrial Internet	335
	<i>Junhui Cai and Qianmu Li</i>	
65-102	Blockchain-based New Energy Grid Electric Energy Measurement Transaction System	341
	<i>Wei Chen and Chengfu Sun</i>	
66-114	ISC: Steganographer Detection Based on Internal Spectral Clustering	346
	<i>Jinglan Yang, Yu Yang, Min Lei and Jialin Lin</i>	
67-118	Efficient Conversion Scheme Of Access Matrix In CP-ABE With Double Revocation Capability	352
	<i>Yingquan Chen and Yong Wang</i>	
68-127	BBSF: A Blockchain Based Secure Framework for The Internet of Things with User Revocation	358
	<i>Yingxun Hu, Dan Yin and Chanying Huang</i>	

69-123	Joint Optimization Offloading and Resource Allocation in Vehicular Edge Cloud Computing Networks with Delay Constraints	363
	<i>Xueying Liu and Guanglin Zhang</i>	

MISCELLANEOUS APPLICATIONS

71-030	Project Portfolio Management Studies Based on Machine Learning and Critical Success Factors	369
	<i>Augusto Hayashida Marchinares and Igor Aguilar-Alonso</i>	
72-048	Sentiment Analysis of Course Evaluation Data Based on SVM Model	375
	<i>Junyan Zhao, Xubiao Yang, Qian Qiao and Liqiong Chen</i>	
73-051	Road Crack Detection and Recognition Based on Image Correction of Horizontal Camera and Convolutional Neural Network	380
	<i>Defu Che, Haochen Liu, Jie Luo, Haiping Tang and Ye Zhang</i>	
74-085	An End-To-End CNN-BiLSTM Attention Model for Gearbox Fault Diagnosis	386
	<i>Xiaoyang Zheng, Jinliang Wu and Zeyu Ye</i>	
75-097	Burst Detection for District Metering Areas Based on Soft-Voting Ensemble model in Water Distribution System	391
	<i>Jianjun Lei, Mengdi Sun and Hang Liu</i>	
76-083	Path Planning of UAVs Based on Improved Ant Colony System	396
	<i>Yue Sun, Jinchao Chen and Chenglie Du</i>	
77-101	A Multi-Objective Optimization Model for Simulation-based Acquisition	401
	<i>Xue Zhang, Junjie Xue, Junhua Zhou, Guoqiang Shi and Yan Yu</i>	
78-069	A System for Container Terminal Operation Prediction	407
	<i>Naixuan Wang, Shitong Shen, Jian Cao, Yihua Ding and Yiyong Xiao</i>	
79-004	Benefits of Small Size Classes in Graduate Software Engineering Education	412
	<i>Emanuel S. Grant, Jason M. Hicks</i>	