PROCEEDINGS OF SPIE

Third International Conference on Computer Science and Communication Technology (ICCSCT 2022)

Yingfa Lu Changbo Cheng Editors

30–31 July 2022 Beijing, China

Organized by Hubei Zhongke Institute of Geology and Environment Technology (China)

Published by SPIE

> Volume 12506 Part One of Two Parts

Proceedings of SPIE 0277-786X, V. 12506 SPIE is an international society advancing an interdisciplinary approach to the science and application of light. The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIEDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings: Author(s), "Title of Paper," in Third International Conference on Computer Science and Communication Technology (ICCSCT 2022), edited by Yingfa Lu, Changbo Cheng, Proc. of SPIE 12506, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X ISSN: 1996-756X (electronic)

ISBN: 9781510661240 ISBN: 9781510661257 (electronic)

Published by **SPIE** P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time) SPIE.org Copyright © 2022 Society of Photo-Optical Instrumentation Engineers (SPIE).

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

Publication of record for individual papers is online in the SPIE Digital Library.



Paper Numbering: A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

• The first five digits correspond to the SPIE volume number.

• The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

Contents

xvii Conference Committee

Part One

	ALGORITHM AND PROGRAMMING
12506 02	A text detection algorithm for ancient Chinese writing based on Swin transformer and mask R-CNN [12506-89]
12506 03	WSN multi-hop routing algorithm based on non-uniform clustering [12506-32]
12506 04	A novel encryption method combining software algorithm and spatial light modulator [12506-63]
12506 05	Attention enhanced dynamic kernel convolution for TDNN-based speaker verification [12506-222]
12506 06	Intelligent sprinkler irrigation system based on k-means algorithm [12506-147]
12506 07	MIMO radar target classification using complex-valued BP learning algorithm [12506-123]
12506 08	Improved ant colony optimization based robot path planning [12506-64]
12506 09	A text classification method of power grid assets based on improved FastText [12506-284]
12506 0A	Digital audio watermarking algorithm in copyright protection of music works [12506-276]
12506 OB	Research on USV path planning method based on CW-RNN framework [12506-148]
12506 OC	Fractional order PID control of quadrotor UAV based on SA-PSO algorithm [12506-153]
12506 OD	Temporal coding in recurrent spiking neural networks with synaptic delay-weight plasticity [12506-83]
12506 OE	Classification method for spatial targets based on convolutional neural network [12506-288]
12506 OF	Forest canopy height estimation using particle swarm optimization and TerraSAR data [12506-67]
12506 0G	A vertical constraint enhanced method for indoor LiDAR SLAM algorithms [12506-161]

12506 OH	An improved grey wolf optimization for solving TSP [12506-29]
12506 01	Pseudo-3D CNN with inter-slice attention for glioma grading [12506-271]
12506 OJ	Multi-objective optimization design method of naval vessels degaussing coils [12506-296]
12506 OK	An optimization algorithm for TSP-like problem in warehouse picking [12506-28]
12506 OL	Research on global double sequence alignment optimization algorithm based on dynamic programming [12506-273]
12506 OM	Private cloud resource prediction based on combinatorial optimization algorithm [12506-196]
12506 ON	Optimization and application of web crawler architecture [12506-30]
12506 00	Chinese short text classification by combining Bert and graph convolutional network [12506-159]
12506 OP	Research on business area mining using location data based on hierarchical clustering algorithm [12506-38]
12506 0Q	Classification of cardiac abnormality based on BCG signal using 1-D convolutional neural network [12506-241]
12506 OR	Feature pyramid graph convolutional networks for temporal action detection [12506-270]
12506 OS	Optimized ship resilience under multi-wave attack based on genetic algorithm [12506-65]
12506 OT	Research on transportation optimal path planning based on improved ant colony algorithm [12506-37]
12506 OU	Research on data kinetic energy measurement based on XGBoost algorithm [12506-306]
12506 OV	Every detection box for multiple object tracking based on GAM [12506-3]
12506 OW	Research on skeleton extraction algorithm based on distance transform [12506-246]
12506 OX	Network anomaly detection based on ensemble learning [12506-205]
12506 OY	Detection of abnormal dangerous behavior in electrical power grids based on the fusion of contextual features [12506-283]
12506 OZ	Exploration and practice of cloud computing course reform in the environment of Aliyun + MOOC [12506-189]
12506 10	Implementation of multi-domain isolation architecture and communication mechanism in Linux [12506-41]

12506 11	Outage performance analysis of underlay cognitive cooperative NOMA network [12506-114]
12506 12	Vertical handover algorithm for Internet of vehicles based on dynamic scanning period and grey prediction [12506-12]
12506 13	Skeleton based human action recognition with relative position encoding [12506-49]
12506 14	An optimal LT code for network flow watermarking [12506-181]
12506 15	Improved speech reconstruction with the complex-valued full convolution neural network [12506-154]
12506 16	Optimization of nonlinear functions based on improved genetic algorithm [12506-90]
12506 17	Improvement of Excel data processing function based on Spring MVC framework [12506-25]
12506 18	Research on cloud computing resource scheduling strategy based on genetic ant colony fusion algorithm [12506-51]
12506 19	Real-time detection network of contraband based on YOLOX [12506-217]
12506 1A	Design and implementation of research on dispatching of earthquake emergency materials based on improved article swarm optimization algorithm [12506-227]
12506 1B	A novel coverage hole repair algorithm based on vertical bisection [12506-46]
12506 1C	Moving object detection based on enhanced frame difference [12506-244]

COMMUNICATION TECHNOLOGY

- 12506 1D Analysis of beam efficiency and accuracy of Gerchberg-Saxton method in multi-beam control of free space optical communication [12506-208]
- 12506 1E An adaptive error compensation method for wide-range current transformers based on segmentation and dimensionality reduction [12506-194]
- 12506 1F Uncertain resource allocation in UAV from the perspective of distributed robust games [12506-157]
- 12506 1G Design of high precision ring ICO circuit with power supply voltage of 0.77V in 0.18µm CMOS process [12506-257]
- 12506 1H Novel location permutation encryption based on exponential numbers [12506-144]
- 12506 11 Leader-follower security games in UAV communication with deception [12506-142]

12506 1J	Analysis and application of SS7 core network threat detection [12506-39]
12506 1K	Research on network traffic acquisition based on in-band telemetry technology [12506-106]
12506 1L	Estimation method of vehicle lane by millimeter wave radar [12506-77]
12506 1M	A multi-fault recovery oriented deployment strategy of backup controllers in SDN [12506-218]
12506 1N	Practical SS-MPC for collusion whole [12506-266]
12506 10	A smart contracts-based searchable encryption scheme with forward privacy [12506-133]
12506 1P	Research on text classification of telecom user query [12506-111]
12506 1Q	Utility-optimized location privacy scheme with geo-indistinguishability [12506-243]
12506 1R	UAV detection based on wireless communication link via CSI autocorrelation function [12506-199]
12506 18	Privacy protection methods for linkability attacks during 5G AKA [12506-201]
12506 1T	Defects analysis of blockchain PoW consensus protocol [12506-165]

COMPUTING AND MODELLING

12506 10	Computing direction similarity based on two-layer domain graph [12506-230]
12506 1V	Construction of intelligent evaluation model for Topic Talk in the Mandarin proficiency test [12506-298]
12506 1W	Research on MR navigation design based on double diamond model: a case of South China Botanical Garden [12506-258]
12506 1X	A new model of Internet addiction tendency based on machine learning [12506-236]
12506 1Y	A bagging ensemble learning traffic demand prediction model based on improved LSTM and transformer [12506-301]
12506 1Z	YOLOv3 tiny vehicle: a new model for real-time vehicle detection [12506-35]
12506 20	Numerical reasoning based on transformer [12506-17]
12506 21	Hybrid influence based on diversity of degree and H-index of neighbors [12506-24]

12506 22	An objective method of measuring students' achievement [12506-59]
12506 23	Smart contract transaction model of blockchain for multi-source and heterogeneous distribution network [12506-303]
12506 24	Lightweight dynamic large convolution model for real-time human pose estimation [12506-294]
12506 25	Analysis on the number of layers in the transformer-based model for neural machine translation [12506-119]
12506 26	A multi-feature fusion based confidence estimation model for Chinese end-to-end speech recognition [12506-198]
12506 27	A BOA-LightGBM hybrid model for estimating the dynamic friction coefficient of asphalt pavements [12506-204]
12506 28	Interpolation-aware models for train-test consistency in mixup [12506-88]
12506 29	Research on time-on-target firing method of fixed loading ammunition for naval gun [12506-268]
12506 2A	Alleviating shortcut learning behavior of VQA model with context augmentation and adaptive loss adjustment [12506-126]
12506 2B	Method of grey relational analysis for multi-attribute decision-making based on Pythagorean fuzzy set [12506-191]
12506 2C	Mega-nourishment morphology evolution prediction combining spatial and temporal features [12506-172]
12506 2D	Research on numerical analysis method of sensible heat flux from building external surfaces in an existing old residential district [12506-225]
12506 2E	Simulation analysis of modular assembly accuracy of marine power shafting based on 3DCS [12506-45]
12506 2F	Power line communication in online detection of cable intermediate joint [12506-150]
12506 2G	Numerical investigation of anti-sloshing performance of hanging porous part in rectangular tank [12506-85]
12506 2H	A new method for analyzing photon-scattering in high-speed turbulence [12506-5]
12506 21	Research on the model of SaaS platform based on Docker container technology [12506-292]
12506 2J	Intelligent unmanned medicine cabinet based on 51 single-chip microcomputer [12506-232]
12506 2K	Radar signal recognition method based on SVM model [12506-20]

	fects of elliptic oblateness on harmonic oscillator in elliptic paraboloid potential [12506-263]
	hannel modeling and characterization of capacitive coupling communication within a metal abinet [12506-290]
	omparison of two-classification models based on neural network for DGA domain name etection [12506-73]
	xperimental research on TSN network performance test based on real-time edge computing latform [12506-224]
	it possible to predict speaker's body size and oral cavity characteristics from speech signals: preliminary study on Mandarin Chinese [12506-34]
	olution of the model of dual-permeability reservoir based on the similar constructive method 2506-43]
	esearch on COVID-19 network public opinion events based on topic model and community etection algorithm [12506-253]
	nalysis of security capability of MVX based on probabilistic attack and defense models 2506-80]
	daptive backstepping sliding mode control of manipulator based on nonlinear disturbance bserver [12506-22]
	new forest carbon sequestration model and multi-faceted forest balanced management ptions [12506-115]
12506 2V Us	ser experience evaluation methods and models for software products [12506-234]
12506 2W A	pplication of computer 3D printing technology in jewelry processing model [12506-6]
12506 2X Re	esearch on machine learning strategy based on voting model [12506-130]
12506 2Y Re	esearch on BP neural network model based on feature engineering [12506-127]
12506 2Z Re	esearch on a new improved UAV anti-jamming and optimization model [12506-155]
12506 30 Pr	rocess modeling of area air defense and anti-missile based on OODA-BPMN [12506-309]
IN	AAGING AND PROCESSING

12506 31 A multi-category scanning acoustic image dataset: design, collection, and evaluation [12506-261]

12506 32 Classification of mild cognitive impairment based on cerebral white matter fiber tracts [12506-239]

12506 33	Real-time contactless monitoring of respiration rate and heart rate based on thermal imaging technology [12506-109]
12506 34	Distributed storage and retrieval of massive remote sensing images [12506-193]
12506 35	Watermarking method based on discrete wavelet transform [12506-68]
12506 36	Research on detection method of lumbar disc herniation based on one-stage object detection [12506-240]
12506 37	Automatic conversion system of digital music score image based on image recognition algorithm [12506-160]
12506 38	Improved AlexNet and embedded multi-attention for remote sensing scene image classification [12506-92]
12506 39	Dual attention mechanism networks for fabric image retrieval [12506-129]
12506 3A	State-of-the-art video recognition of human action under natural scenes [12506-170]
12506 3B	An attention directed generative adversarial network for retinal vessel segmentation [12506-78]
12506 3C	Schmidt orthogonal optimization of measurement matrix [12506-105]
12506 3D	Research on student classroom attention recognition based on multimodality [12506-297]
12506 3E	Artificial intelligence applications in medical sciences: illustrations in pharmaceutical and medical imaging areas [12506-56]
12506 3F	Multi-attention prior based residual encoder-decoder network for fast and accurate reconstruction in fluorescence molecular tomography [12506-209]
12506 3G	Efficient relative pose estimation with an RGB-D camera in indoor environment [12506-74]
Part Two	
12506 3H	A flexible and extensible approach to face extraction and swapping [12506-279]
12506 31	An aerial image data cleaning of power lines with multi-information fusion perception [12506-211]
12506 3J	Bronze inscription classification based on rare-class sample generator [12506-58]
12506 3K	Comparative study of water-body extraction methods based on Landsat8 remote sensing images [12506-220]

	memory enhancement [12506-250]
12506 3M	Self-supervised learning and multi-scale ensemble for EBV prediction based on whole slide image of gastric cancer [12506-242]
12506 3N	Vehicle recognition and tracking method based on roadside perception [12506-231]
12506 30	Scene graph generation based on global embedding and contextual fusion [12506-44]
12506 3P	Infrared small target detection based on Gaussian curvature filtering and partial sum of singular values [12506-197]
12506 3Q	Reciprocal collaboration network for 3D skeleton-based human motion prediction [12506-254]
12506 3R	Body-worn cameras in China: a survey [12506-203]
12506 38	Three-dimensional reconstruction using phase-shifted square-wave patterns [12506-135]
12506 3T	Multi-input fusion underwater image enhancement technology [12506-221]
12506 3U	Abnormal event detection based on appearance repair and motion consistency [12506-264]
12506 3V	An end-to-end network for multiple scattering media imaging [12506-162]
12506 3W	GDBID: fusion gradient distinction binary image descriptor [12506-69]
12506 3X	Binocular camera based express packaging box dimension measurement [12506-245]

Research on video anomaly detection with variational auto-encoder based on multi-level

INFORMATION TECHNOLOGY AND INFORMATION

- 12506 3Y Intelligent parking management system based on cloud platform [12506-120]
- 12506 3Z Parallel coordinate visualization of edge bundling based on comprehensive index evaluation of media platform: take the comparative analysis of industry big data in the post-epidemic era as an example [12506-36]
- 12506 40 Research on the influence factors of logistics cluster based on two-dimensional analytical framework [12506-200]
- 12506 41 Virtual graphing calculator applied in learning and the performance based on teaching experiment method [12506-14]
- 12506 42 Real-time value of tourist big data: a case study of Red River Canyon raffing scenic spot [12506-107]

12506 3L

12506 43	Research on the chlorophyll-a distribution in Bohai Sea based on the MODIS data [12506-175]
12506 44	Research on terminal logistics distribution based on reinforcement learning and pointer network [12506-260]
12506 45	Effects of peer-review on Peerceptiv in English writing [12506-178]
12506 46	Mixed mode of instruction database principles and applications [12506-229]
12506 47	Construction of an effective integration path based on CEPRE informatization and teaching [12506-104]
12506 48	Method of subspace cross-modal retrieval based on hypergraph ranking [12506-185]
12506 49	Design of WeChat teaching information retrieval platform based on DCMH [12506-186]
12506 4A	Research on several construction strategies of multilingual resource database [12506-31]
12506 4B	Research on robust fuzzy rough set to reduce students' evaluation indexes [12506-132]
12506 4C	Research and application on the digital mine platform [12506-295]
12506 4D	Research on intelligent construction data resource catalogue based on power grid business [12506-277]
12506 4E	Application of big data technology in intelligent logistics [12506-110]
12506 4F	Adaptive tank gun control under unknown control direction condition [12506-98]
12506 4G	Construction of rural land use knowledge map [12506-286]
12506 4H	Research on construction technology of real digital twin traffic scene based on edge-cloud collaboration [12506-212]
12506 41	Data visualization analysis of China's "Golden Course" research based on CiteSpace [12506-7]
12506 4J	Coordination technology of design data based on data space [12506-156]
12506 4K	Recognizing human activities with attention mechanism on multi-source sensor data [12506-61]
12506 4L	Design and trajectory planning of 3+2 DOF manipulator for inspection robot [12506-18]
12506 4M	Integrating knowledge distillation of multiple strategies [12506-214]
12506 4N	Artificial intelligence in human-computer interaction of vehicle [12506-54]

12506 40	A comprehensive evaluation method integrating the rough sets with the intuitionistic fuzzy analytic hierarchy process [12506-184]
12506 4P	An intelligent shore power device controlled by Internet of things [12506-249]
12506 4Q	Research on the safe and efficient collision avoidance methods for large autonomous merchant ships in open and busy waters [12506-180]
12506 4R	Requirement identification and disassembly of electromechanical products based on domain knowledge network [12506-145]
12506 4S	Research and analysis on hierarchical management balancing strategy of intelligent VPN in colleges and universities under hierarchical protection 2.0 background [12506-252]
12506 4T	Research on accessibility analysis of park green space based on big data: taking Xiongan New Area in China as an example [12506-248]
12506 4U	Exponential correlation dynamic threat assessment under multi-type heterogeneous data [12506-289]
12506 4V	A cycle-consistent reciprocal network for visual correspondence [12506-207]
12506 4W	A comparative research on the effectiveness of two mobile applications for vocabulary learning: BaiCiZhan and Bubeidanci [12506-152]
12506 4X	Study of structure health monitoring using distributed optical fiber sensing for concrete beam structures: taking bridge deflection measuring as an example [12506-9]
12506 4Y	Forensic authenticity examination of PDF documents [12506-166]
12506 4Z	Visualization analysis of university information literacy education research data [12506-11]
12506 50	Research of collaborative planning for J village in Zhejiang province based on digital technology [12506-174]

SENSORS AND COMPUTER SYSTEMS

- 12506 51 Automatic raw material screening device for wind turbine foundation anchor bolt [12506-235]
- 12506 52 IMU-based joint angle measurement for robot joint angle analysis [12506-71]
- 12506 53 Fatigue analysis of vehicle body welding joint based on road load spectrum [12506-302]
- 12506 54 KubeCOM: an implementation of a non-containerized software management system based on Kubernetes [12506-237]
- 12506 55 Application of artificial intelligence technology in 5G Edge IoT proxy communication terminal of power system [12506-259]

12506 56	Research on micro power wireless communication system based on OFDM technology [12506-134]
12506 57	Optimization of recovery bandwidth utilization in erasure code storage systems [12506-228]
12506 58	Airport terminal area visualization decision system research [12506-128]
12506 59	Monitoring system based on virtual reality technology and video processing technology [12506-278]
12506 5A	Barrier Lyapunov function-based adaptive control for uncertain linear motor systems [12506-99]
12506 5B	Intelligent question answering system for medical knowledge [12506-87]
12506 5C	Analysis of lifting system of FAST feed receiver robot [12506-255]
12506 5D	Cut down or not: a forest management decision system [12506-57]
12506 5E	Design of a game-based learning environment for basic rhythmic patterns in music [12506-19]
12506 5F	Initial-rectification iterative learning control approach of linear motor systems [12506-108]
12506 5G	Robust adaptive control approach for pneumatic artificial muscle system with actuator faults [12506-94]
12506 5H	Research on the design of household coagulation testing product service system [12506-167]
12506 51	Collaborative teaching system based on private cloud disk [12506-113]
12506 5J	Sliding mode guidance law for a receiver UAV in the rendezvous phase of autonomous aerial refueling [12506-117]
12506 5K	City appearance environment management system based on WebGIS [12506-168]
12506 5L	Research on implicit transmission monitoring of files across business systems [12506-274]
12506 5M	Research on the optimal control method of regional road network based on dynamic vehicle distribution [12506-287]
12506 5N	A smart bus lane monitoring system based on object detection [12506-256]
12506 50	Research on the comprehensive evaluation system of forest carbon sequestration [12506-2]
12506 5P	Research on rapid prediction method of projectile impact point [12506-215]

12506 5Q	Calculation of intersection signal timing based on electronic police passing data [12506-183]
12506 5R	Non-contact respiratory monitoring radar system based on micro-Doppler effect [12506-188]
12506 55	Design and implementation of community express delivery system [12506-118]
12506 5T	Research on ancient building health monitoring technology based on real-time situation awareness [12506-4]
12506 50	Ballbar based geometric error measurement and uncertainty analysis of rotary axis for five-axis machine [12506-8]
12506 5∨	Research on dynamics of molten pool of laser-MIG hybrid welding [12506-213]
12506 5W	A new hardware stack sequence decoder based on FPGA [12506-82]
12506 5X	Advance TEM application in 10 nm and below technology node chips [12506-307]

1 1 11050 (1001

ARTIFICIAL INTELLIGENCE AND APPLICATIONS

- 12506 5Y Classification method for safety status of industrial enterprise based on BP neural network [12506-139]
- 12506 57 A fault diagnosis method of turn-to-turn short circuit of Permanent Magnet Synchronous Motor (PMSM) based on deep learning [12506-265]
- 12506 60 Stock price analysis and forecasting based on machine learning [12506-149]
- 12506 61 Research on simulation demonstration of urban rail transportation based on cloud platform architecture [12506-282]
- 12506 62 A novel semi-supervised method based on active sample proposal and modified self-learning for SAR target discrimination [12506-66]
- 12506 63 Design and implementation of remote meter reading system based on cloud platform and NB IOT [12506-122]
- 12506 64 Deep learning model for community detection fusing network structure and node attributes [12506-16]
- 12506 65 Research and exploration for deep learning of artificial intelligence based on intelligent voice interaction in engineering experiment project guidance [12506-116]
- 12506 66 Optimization-based solution of the optimal range of molecular descriptors for anti-breast cancer medicine candidates [12506-13]
- 12506 67 Study on the difference of brain visual information processing between Parkinson's disease patients with hallucinations and healthy people based on EEG [12506-60]

1050/ 50

. ..

12506 68	Analysis of industrial product quality problems based on knowledge graph reasoning [12506-146]
12506 69	Research on technical architecture of knowledge extraction in vertical field [12506-91]
12506 6A	Multimodal depression detection using a deep feature fusion network [12506-269]
12506 6B	Machine learning-based solution of Kepler's equation [12506-23]
12506 6C	Lower limb motion pattern recognition based on IWOA-SVM [12506-81]
12506 6D	Research on retail demand forecasting based on deep learning [12506-27]
12506 6E	Baseline detection based on local connection and evaluation for Tibetan historical document text line [12506-299]
12506 6F	Research on pose and position estimation based on mask RCNN edge extraction for AR auxiliary assembly system [12506-62]
12506 6G	Reference set based metric learning method for person re-identification against overfitting problem [12506-280]
12506 6H	Driver abnormal behavior detection based on dual-channel attention mechanism [12506-233]
12506 61	Person re-identification method based on multi-scale residual pooling [12506-72]
12506 6J	Theoretical linear convergence of deep unfolding network for block-sparse signal recovery [12506-192]
12506 6K	A deep learning based online classroom fatigue monitoring system for students [12506-33]
12506 6L	Online learning effect analysis based on machine learning [12506-272]
12506 6M	Machine learning technology in safety production and maintenance of power plant [12506-173]
12506 6N	Cross-receiver specific emitter identification based on a deep adversarial neural network with separated batch normalization [12506-281]
12506 60	Research on deep learning method in ship hull form optimization [12506-210]
12506 6P	Multi-kernel non-local neural network for semantic segmentation [12506-138]
12506 6Q	Price movement prediction using deep learning: a case study of the China futures market [12506-223]

12506 6R	Application of artificial intelligence technology in unconventional natural gas production forecasting [12506-291]
12506 68	Research on aggregate grading based on deep learning [12506-163]
12506 6T	Auto-feature extraction for industrial machine learning based on system dynamics diagram [12506-10]
12506 6U	A method for improving the accuracy of wide-range current transformers based on deep belief networks [12506-190]
12506 6V	Pixel-level semantic segmentation based on gradient features [12506-40]
12506 6W	Tibetan medical named entity recognition study for Tibetan clinical electronic medical records [12506-141]
12506 6X	Research on stock prediction based on simulated annealing algorithm and ensemble neural learning [12506-308]

12506 6Y Deep learning algorithm vs XGBoost using Wisconsin breast cancer diagnosis [12506-305]