2023 5th International Conference on Natural Language Processing (ICNLP 2023)

Guangzhou, China 24-26 March 2023



IEEE Catalog Number: CFP23AL6-POD **ISBN:**

979-8-3503-0222-6

Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP23AL6-POD
ISBN (Print-On-Demand):	979-8-3503-0222-6
ISBN (Online):	979-8-3503-0221-9

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400 Fax: (845) 758-2633 E-mail: curran@proceedings.com Web: www.proceedings.com



2023 5th International Conference on Natural Language Processing (ICNLP) ICNLP 2023

Table of Contents

Preface	xvii
Organizing Committee	xviii
Technical Program Committee	
Reviewers	

Target Detection and Tracking

Research Based on Improved SSD Target Detection Algorithm
 Small Object Detection Based on Context Information and Attention Mechanism
 Bengali Fake Review Detection using Semi-Supervised Generative Adversarial Networks
 Multi-Constraint Coupling Optimization for Salient Object Detection

Siamese Network Visual Tracking Algorithm Based on GCT Attention and Dual-Template Update . 31 Sugang Ma (Xi'an University of Posts and Telecommunications, China), Siwei Sun (Xi'an University of Posts and Telecommunications, China), Lei Pu (Rocket Force Engineering University, China), and Xiaobao Yang (Xi'an University of Posts and Telecommunications, China)

Image Segmentation and Algorithm

Camouflage Target Segmentation Based on Reverse Attention and Self-Interaction Fusion	37
Adaptive Kernelized Evidence C-Means Clustering Combining Spatial Information for Noisy	
Image Segmentation	42
Lan Rong (Xi'an University of Posts and Telecommunications, China), Mi	
Haowen (Xi'an University of Posts and Telecommunications, China), Qu	
Na (Xi'an University of Posts and Telecommunications, China), Zhao	
Feng (Xi'an University of Posts and Telecommunications, China), Yu	
Haiyan (Xi'an University of Posts and Telecommunications, China), and	
Zhang Lu (Xi'an University of Posts and Telecommunications, China)	
Adaptive SLIC-based Fuzzy Intensity Dissimilarity Thresholding for Color Image	
Segmentation	. 52
Lan Rong (Xi'an University of Posts and Telecommunications, China),	
Feng Danlin (Xi'an University of Posts and Telecommunications, China),	
Feng Zhao (Xi'an University of Posts and Telecommunications, China),	
Yu Haiyan (Xi'an University of Posts and Telecommunications, China),	
and Zhang Lu (Xi'an University of Posts and Telecommunications, China)	
ASSA-Net: Semantic Segmentation Network for Point Clouds Based on Adaptive Sampling and	
Self-Attention	. 60
Da Ai (Xi'an University of Posts and Telecommunications, China), Ce Xu	
(Xi'an University of Posts and Telecommunications, China), Xiaoyang	
Zhang (Xi'an University of Posts and Telecommunications, China), Yu Ai	
(Xi'an University of Posts and Telecommunications, China), Yansong Bai	
(Xi'an University of Posts and Telecommunications Xi'an, China), and	
Ying Liu (Xi'an University of Posts and Telecommunications, China)	

Center-Free Intuitionistic Fuzzy C-Means Clustering Algorithm Based on Similarity of	
Hybrid Spatial Membership for Image Segmentation	. 65
Lan Rong (Xi'an University of Posts and Telecommunications, China),	
Wang Shumin (Xi'an University of Posts and Telecommunications, China),	
He Hu (Xi'an University of Posts and Telecommunications, China), Zhao	
Feng (Xi'an University of Posts and Telecommunications, China), Yu	
Haiyan (Xi'an University of Posts and Telecommunications, China), and	
Zhang Lu (Xi'an University of Posts and Telecommunications, China)	

Image Analysis and Processing Methods

A Lightweight Human Pose Estimation Algorithm Based on High Resolution Network	3
Construction and Performance Analysis of Combinatorial Chaotic Map Based on Fuzzy Entropy 7 Tingting Chen (Xi'an University of Posts and Telecommunications, China), Xuefeng Zhang (Xi'an University of Posts and Telecommunications, China), Meixia Miao (Xi'an University of Posts and Telecommunications, China), and Pengfei Tu (Xi'an University of Posts and Telecommunications, China)	8
A Two Stage Learning Algorithm for Hyperspectral Image Classification	6
 Deep Composite Kernels ELM Based on Spatial Feature Extraction for Hyperspectral Vegetation Image Classification	2
Apple Leaf Disease Recognition Based on Improved Convolutional Neural Network with an Attention Mechanism 9 Guangyuan Zhao (Xi'an University of Posts and Telecommunications, China) and Xu Huang (Xi'an University of Posts and Telecommunications, China)	8
 Accurate Recognition of Kiwifruit Based on Improved YOLOv5	3

Implementation of License Plate Detection Based on Improved YOLOv5s <i>Chen Yang (Xi'an University of Posts and Telecommunications, China)</i> <i>and Guang-yuan Zhao (Xi'an University of Posts and Telecommunications,</i> <i>China)</i>	108
Multi-Level Feature Extraction and Edge Reconstruction Fused Generative Adversarial	
Networks for Image Super Resolution	113
Yinghua Li (Xi'an University of Posts and Telecommunications, China),	
Yue Liu (Xi'an University of Posts and Telecommunications, China),	
Ying Liu (Xi'an University of Posts and Telecommunications, China),	
Yangge Qiao (Xi'an University of Posts and Telecommunications, China),	
and Jinglu He (Xi'an University of Posts and Telecommunications,	
China)	

Signal Detection and Speech Enhancement

Speech Endpoint Detection Based on EMD and Improved Spectral Subtraction
Chong (Xi'an University of Posts and Telecommunications, China), Wenting Pang (Xi'an University of Posts and Telecommunications, China), and Lei Wang (Xi'an University of Posts and Telecommunications, China)
Implementation of the CPFSK Signal Non-Coherent Multi-Symbol Detection Algorithm with Reduced Complexity 131 Xihai Xie (Xi'an University of Posts and Telecommunications, China) 131 and Mingxin Zhang (Xi'an University of Posts and Telecommunications, China) 131 China) 131
An Effective Algorithm for Direction-of-Arrival Estimation of Coherent Signals with ULA
Long-Term Coherent Accumulation Algorithm Based on Radar Altimeter
An Improved LMS Adaptive Filtering Speech Enhancement Algorithm

A Survey of Speech Recognition Based on Deep Learning	
Youyao Liu (Xi'an University of Posts and Telecommunication, China),	
Jiale Chen (Xi'an University of Posts and Telecommunication, China),	
Jialei Gao (Xi'an University of Posts and Telecommunication, China),	
and Shihao Gai (Xi'an University of Posts and Telecommunication,	
China)	

Semantic Recognition and Machine Translation

Alignment Offset Based Adaptive Training for Simultaneous Machine Translation
Letz Translate: Low-Resource Machine Translation for Luxembourgish
Design and Optimization of Loss Functions in Fine Grained Sentiment and Emotion Analysis 171 Ye Shiren (Changzhou University, China), Ding Li (Changzhou University, China), and Ali Md Rinku (Changzhou University, China)
CON-GAN-BERT: Combining Contrastive Learning with Generative Adversarial Nets for Few-Shot Sentiment Classification
Chinese Semantic Role Labeling Based on BILSTM-CRF Extended Model
Named Entity Recognition Based on Pre-Training Model and Multi-Head Attention Mechanism 187 GuoHua Zhu (Jianghan University, China) and Jian Wang (Jianghan University, China)
Named Entity Recognition Method Based on BERT-Whitening and Dynamic Fusion Model
 FastSpanNER: Speeding up SpanNER by Named Entity Head Prediction

Data-Driven Pruning Algorithm Based on Result Orientation
Jin Wu (Xi'an University of Posts and Telecommunication, China),
Zhaoqi Zhang (Xi'an University of Posts and Telecommunication, China),
Bo Zhao (Xi'an University of Posts and Telecommunication, China), and
Yu Wang (Xi'an University of Posts and Telecommunication, China)
 What Are You Posing: A Gesture Description Dataset Based on Coarse-Grained Semantics
 FASST: Few-Shot Abstractive Summarization for Style Transfer

Corpus and Language Models

Assessment of Nonverbal-Behavior Annotation Tags in Multimodal Learner Corpus Katsunori Kotani (Kansai Gaidai University, Japan) and Takehiko Yoshimi (Ryukokou University, Japan)	. 220
Personality Analysis of Entrepreneurial Text for Entrepreneurship Education Akinori Ito (Tohoku University, Japan), Kotaro Takeda (Tohoku University, Japan), and Shuichi Ishida (Tohoku University, Japan)	224
Multilingual BERT Cross-Lingual Transferability with Pre-Trained Representations on Tangut: A Survey	229
Xiaoming Lu (City University of Macau; Guangdong University of Foreign Studies, China), Wenjian Liu (City University of Macau, China), Shengyi Jiang (Guangdong University of Foreign Studies, China), and Changqing Liu (Guangdong University of Foreign Studies, China)	
When to Use Large Language Model: Upper Bound Analysis of BM25 Algorithms in Reading Comprehension Task <i>Tingzhen Liu (Tencent IEG, China), Qianqian Xiong (Shandong</i> <i>University, China), and Shengxi Zhang (Shandong University, China)</i>	235
Post-Encoding and Contrastive Learning Method for Response Selection Task Xianwei Xue (Tsinghua University, China), Chunping Li (Tsinghua University, China), Zhilin Lu (Tsinghua University, China), Youshu Zhang (Aden Tech, China), and Shanghua Xiao (Aden Tech, China)	239

Text Extraction and Natural Language Processing

CARMEN: A Method for Automatic Evaluation of Poems	
Maurilio de Araujo Possi (Universidade Federal de Viçosa, Brazil),	
Alcione de Paiva Oliveira (Universidade Federal de Viçosa, Brazil),	
Alexandra Moreira (Universidade Federal de Viçosa, Brazil), and Lucas	
Mucida Costa (Universidade Federal de Viçosa, Brazil)	
3 / /	

A Transformer-Based Architecture for the Automatic Detection of Clickbait for Arabic Headlines	248
Jihad R'baiti (Mohammed VI Polytechnic University (UM6P), Morocco), Rdouan Faizi (Mohammed V University (UM5), Morocco), Youssef Hmamouche (Mohammed VI Polytechnic University (UM6P), Morocco), and Amal El Fallah Seghrouchni (Mohammed VI Polytechnic University (UM6P), Morocco)	
Construction of Part of Speech Tagger for Malay Language: A Review Nurulhuda Mohamad Ali (Multimedia University, Malaysia), Goh Hui Ngo (Multimedia University, Malaysia), and Amy Lim Hui Lan (Multimedia University, Malaysia)	253
Perceptual Assimilation of Mandarin Consonants in Second Language Acquisition Dan Du (Tsinghua University; Beijing Language and Culture University, China) and Minghu Jiang (Tsinghua University, China)	258
A Two-Stage E-Commerce Search Matching Model Incorporating Contrastive Learning and Course-based Hard Negative Example Sampling Wenkai Zhang (Nanjing University, China)	263
Multimodal Visual Question Answering Model Enhanced with Image Emotional Information Jin Cai (Guilin University of Electronic Technology, China) and Guoyong Cai (Guilin University of Electronic Technology, China)	268
Context-Aware Information Extraction from Multi-Thread Business Conversations	274
Computer-Aided Analysis of Conceptual Metaphors in English News Report <i>Tu Ying (Wuhan Business University, P. R. China)</i>	284
On the Implementation of the Algorithm for Representation of Discontinuity in Natural Language Ratna Nirupama (Indian Institute of Technology Hyderabad, India) and Prakash Mondal (Indian Institute of Technology Hyderabad, India)	288
Entity Relationship Extraction Method Based on Multi-Head Attention and Graph Convolutional Network Sheping Zhai (Xi'an University of Posts & Telecommunications, China), Hang Li (Xi'an University of Posts & Telecommunication, China), Fangyi Li (Xi'an University of Posts & Telecommunication, China), and Xinnian Kang (Xi'an University of Posts & Telecommunication, China)	293

Text Generation and Text Classification

A Framework for Early Detection of Cyberbullying in Chinese-English Code-Mixed Social	
Media Text using Natural Language Processing and Machine Learning	298
Carlin Chun-fai Chu (The Hang Seng University of Hong Kong, China),	
Raymond So (The Hang Seng University of Hong Kong, China), Simon	
Siŭ-wai Li (The Hang Seng University of Hong Kong, China), Érnest	
Kan-lam Kwong (The Hang Seng University of Hong Kong, China), and	
Chun-Hung Chiu (Sun Yat-sen University, China)	

A Study of Chinese Text Classification Based on a New Type of BERT Pre-Training
Multi Feature Fusion Paper Classification Model Based on Attention Mechanism
Graph-to-Text Generation Combining Directed and Undirected Structural Information in Knowledge Graphs
Unsupervised Contradiction Detection using Sentence Transformations
 Generalization Algorithm of Multimodal Pre-Training Model Based on Graph-Text Self-Supervised Training

Network Anomaly Detection and Security

A Graph Autoencoder-based Anomaly Detection Method for Attributed Networks Kunpeng Zhang (Xi'an University of Posts and Telecommunications, China), Guangyue Lu (Xi'an University of Posts and Telecommunications, China), Yuxin Li (Xi'an University of Posts and Telecommunications, China), and Cai Xu (Xidian University, China)	. 330
EE-GCN: A Graph Convolutional Network Based Intrusion Detection Method for IIoT Peng Xu (Xi'an University of Posts and Telecommunications, China), Guangyue Lu (Xi'an University of Posts and Telecommunications, China), Yuxin Li (Xi'an University of Posts and Telecommunications, China), and Cai Xu (Xidian University, China)	338
An Improved Anonymous Authentication Scheme for Internet of Medical Things Based on Elliptic Curve Cryptography Shuanggen Liu (Xi'an university of Posts and Telecommunication, China), Hui Xu (Xi'an university of Posts and Telecommunication, China), and Rui Zang (Xi'an university of Posts and Telecommunication, China)	345

Network Resource Allocation and Management

Cache Allocation Algorithm of 5G Core Network Slicing Based on Soft Migration Actor Critic 35 Chenglin Xu (Xi'an University of Posts and Telecommunications, China), Guohui Zhu (Xi'an University of Posts and Telecommunications, China), and Qianwen Yang (Xi'an University of Posts and Telecommunications, China)	0
A Fast Capture Structure for Dichotomous DMF Pseudocode Based on DSP Builder	7
Distributed Resource Allocation and Offloading Strategy Based on Deep Reinforcement Learning in V2V	2
Resource Management Algorithm for Slicing Function in 5G Network Slicing	7

Wireless Communication System and Network Design

A V2P Warning System on the Basis of LoRa Wireless Network	3
Application Research of 3D MSVR-DV-Hop Algorithm Based on Node Filtering	Э
Automatic Gain Control Circuit Design for Wireless RF Receiver	1
Robust Mode Detection Based on DRM System 389 Yani Qiao (Xi'an University of Posts and Telecommunications, China), 389 Bo Li (Xi'an University of Posts and Telecommunications, China), 389 Cui (Xi'an University of Posts and Telecommunications, China), Wen 389 Yuji Li (Xi'an University of Posts and Telecommunications, China), and 389 Yuji Li (Xi'an University of Posts and Telecommunications, China), and 389	9

Upper Bound Analysis of TSN End-to-End Delay Based on Network Calculus	394
Juan Guo (Xi'an University of Posts and Telecommunication, China),	
Huixiao Wang (Xi'an University of Posts and Telecommunication, China),	
Zexin Wang (Xi'an University of Posts and Telecommunication, China),	
and Zhixian Chang (Xi'an University of Posts and Telecommunication,	
China)	

AI-based Advanced Information System and Data Model

 Implementation of Node Classification Algorithm Based on Graph Neural Network	0
 Intelligent Fault Diagnosis of Rolling Bearing Based on VMD and Improved Self-Training Semi Supervised Ensemble Learning	5
 N-Ary Relational Link Prediction Algorithm Fusing Graph Attributes	4
Research on I-PageRank Algorithm Model of Process Knowledge Graph Based on K-Shell Decomposition Algorithm Yanwei Huo (Xi'an University of Posts and Telecommunications, China) and Hongyu Cheng (Xidian University, China)	9
Research on Optimization Methods for Industrial Model Retrieval	5
Blockchain for Supply Chain Data Security Sharing Consensus Algorithm Design	4
Design of Memory System for Recursive Neural Network Hardware Accelerator	C

Multi-Objective Virtual Machine Placement Algorithm Based on Improved Discrete	
Differential Evolution	445
Li Liu (Xi'an University of Posts and Telecommunications, China),	
Wujun Yang (Xi'an University of Posts and Telecommunications, China),	
and Zhixian Chang (Xi'an University of Posts and Telecommunications,	
China)	

Data Transmission and Mobile Edge Computing in Communication Systems

A Collision-Reducible Adaptive Data Rate Algorithm for Low-Cost LoRa Gateways
 Research on Switching Strategy with Reinforcement Learning and Game Theory in Satellite-Terrestrial Integrated Networks
Research on Beamspace Channel Estimation Method Based on DISTA
Reliable Routing of Time-Triggered Traffic in Time Sensitive Networks
Multi-user Computing Offloading Based on Deep Reinforcement Learning
Dynamic Service Migration Method Based on User Mobility

Research on Collaborative Computational Offload Strategy Based on Improved Ant Colony	
Algorithm in Edge Computing	. 486
Haibo Ge (Xi'an University of Posts and Telecommunications, China),	
Jiajun Geng (Xi'an University of Posts and Telecommunications, China),	
Yu An (Xi'an University of Posts and Telecommunications, China),	
Haodong Feng (Xi'an University of Posts and Telecommunications,	
China), Ting Zhou (Xi'an University of Posts and Telecommunications,	
China), and Chaofeng Huang (Xi'an University of Posts and	
Telecommunications, China)	

Author Index		91
--------------	--	----