

2021 3rd International Conference on Natural Language Processing (ICNLP 2021)

**Beijing, China
26 – 28 March 2021**



**IEEE Catalog Number: CFP21AL6-POD
ISBN: 978-1-6654-1412-8**

**Copyright © 2021 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:	CFP21AL6-POD
ISBN (Print-On-Demand):	978-1-6654-1412-8
ISBN (Online):	978-1-6654-1411-1

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

CURRAN ASSOCIATES INC.
proceedings
.com

2021 3rd International Conference on Natural Language Processing (ICNLP) **ICNLP 2021**

Table of Contents

Preface xi.....
Conference Committees xii.....

Session 1: Text Classification and Methods

Exploring Trending Topics of Social Media Text with VoronoiTopicCloud Provide Useful and Intuitive Insights into Social Media Texts .1.....
Yuhui Wang (Beijing University of Posts and Telecommunications, China), Feng Zhou (Beijing University of Posts and Telecommunications, China), and Xiaoyong Li (Beijing University of Posts and Telecommunications, China)

The Importance of Token Granularity Matching of Pre-Trained Word Vectors for Deep Learning-Based Spam Classification .9.....
Xiaoyong Liao (Beijing Institute of Information Technology, China) and Guangming Zhou (China National Salt Industry Group Co., Ltd, China)

Research on Chinese Text Classification Based on WAE and SVM .14.....
Xin Chen (Dalian Jiaotong University, China) and Zhanzhi Qiu (Dalian Jiaotong University, China)

The Application of Active Query K-Means in Text Classification .20.....
Yukun Jiang (New York University, United States)

A Financial Advertisement Recognition Algorithm Model Based on Text .26.....
Tao Liu (Harbin Institute of Technology), Zhaoxin Zhang (Harbin Institute of Technology), and Ning Li (Harbin Institute of Technology)

A Corpus Preprocessing Method for Syllable-Level Tibetan Text Classification .33.....
Dao Ji Zhaxi (Qinghai Normal University, China), Cai Zhi-Jie (Southwest Minzu University, China), Cai Rang-Zhuoma (Southwest Minzu University, China), San Mao-cuo (Qinghai Normal University, China), and Ban Ma-bao (Qinghai Normal University, China)

Extractive Summarization of Text Using Supervised and Unsupervised Techniques .37.....
Hira Tauseef (Bahria University Islamabad, Pakistan) and Muhammad Asfand-e-yar (Bahria University Islamabad, Pakistan)

Comparative Study of Stemming Strategy for Hadith Text Classification .42.....	
	<i>Irwan Mazlin (Universiti Teknologi Mara, Malaysia), Izani Mohamed Rawi (Universiti Teknologi Mara, Malaysia), Mohd Zaki Zakaria (Universiti Teknologi Mara, Malaysia), and Siti Sarlina Abdul Rahman (TRC Business Centre, Malaysia)</i>
An Improved Optimization Algorithm Based on Leapfrog and Whale Optimization Fusion .46.....	
	<i>Ting Nie (Xi'an University of Posts and Telecommunication, China), Xu He (Xi'an University of Posts and Telecommunications, China), Yong Xiao Yang (National Institute of Radio Spectrum Management, China), Qiang Xiao Zhao (Xi'an University of Posts and Telecommunications, China), and Zheng Zhong Ning (Xi'an University of Posts and Telecommunications, China)</i>

Session 2: Knowledge Engineering and Management

Automatic Development of Knowledge Graph Based on NLTK and Sentence Analysis .52.....	
	<i>Haoze Jing (Fujian Agriculture and Forestry University, China), Changying Wang (Fujian Agriculture and Forestry University, China), Li Cheng (Fujian Agriculture and Forestry University, China), Junting Qi (Fujian Agriculture and Forestry University, China), Shuihan Jiang (Fujian Agriculture and Forestry University, China), and Xiaojuan Zhang (Fujian Agriculture and Forestry University, China)</i>
An Anonymous Editable Blockchain Scheme Based on Certificateless Aggregate Signature .57.....	
	<i>Kemeng Li (Xi'an University of Posts and Telecommunications, China), Dong Zheng (Xi'an University of Posts and Telecommunications, China), and Rui Guo (Xi'an University of Posts and Telecommunications, China)</i>
A Multi-Feature Fusion Method for Tibetan Sentence Similarity Calculation .68.....	
	<i>XiLin Chen (QingHai Normal University, China), Zhijie Cai (QingHai Normal University, Southwest Minzu University, China), and ZhuoMa CaiRang (SouthWest MinZu University, China)</i>
Quality Evaluation Model of AI-Based Knowledge Graph System .73.....	
	<i>ZhenHao Xu (China Electronic Products Reliability and Environmental Testing Research Institute, China), Yan Gao (China Electronic Products Reliability and Environmental Testing Research Institute, China), and Fei Yu (China Electronic Products Reliability and Environmental Testing Research Institute, China)</i>
Applying Curriculum Learning on Path-Based Knowledge Graph Reasoning Algorithms .79.....	
	<i>Haitao Jia (University of Electronic Science and Technology of China, China) and Linjie Luo (University of Electronic Science and Technology of China, China)</i>
Intelligent Question Answering System Based on Knowledge Graph of Beijing Opera .87.....	
	<i>Wenjun Hou (Beijing University of Posts and Telecommunications, China) and Yiming Cao (Beijing University of Posts and Telecommunications, China)</i>
Electronic Medical Record Sharing Solution for Editable Blockchain .93.....	
	<i>Xutao Wang (Xi'an University of Posts and Telecommunications, China), Dong Zheng (Xi'an University of Posts and Telecommunications, China), and Rui Guo (Xi'an University of Posts and Telecommunications, China)</i>

Session 3: Speech Analysis and Linguistics

- The Meaning Construction and Characteristics Analysis of the Neologism “Yuanlianglv” .104.....
Yuting Pan (Beijing Normal University, China)
- Thai/English Cross-Language Transliterated Word Retrieval using Transformer .109.....
Apichad Chodkawanich (Chulalongkorn University, Thailand) and Boonserm Kijirikul (Chulalongkorn University, Thailand)
- The Status Quo and Value of Western Yugur Language Research .115.....
Fan Bai (Northwest Minzu University, China), Shiliang Lyu (Northwest Minzu University, China), and Lin Na (Northwest Minzu University, China)
- A Joint Model for Chinese Medical Entity and Relation Extraction Based on Graph Convolutional Networks .119.....
Yali Pang (Northwest Normal University, China), Tong Zhou (Northwest Normal University, China), and Zhichang Zhang (Northwest Normal University, China)
- A Method of Tibetan Speech Enhancement Based on Neural Network .125.....
Dan Chen (Qinghai Normal University, China), Cai RangZhuoma (Southwest University for Nationalities, China), Cai Zhijie (Qinghai Normal University, China), and Gaopan Li (Qinghai Normal University, China)
- Tibetan Voice Activity Detection Based on One-Dimensional Convolutional Neural Network .129.
Gaopan Li (Qinghai Normal University, China), Cai RangZhuoma (Southwest University for Nationalities, China), Cai Zhijie (Qinghai Normal University, China), and Dan Chen (Qinghai Normal University, China)

Session 4: Machine Translation and Natural Language Processing

- A Linguistic System for Predicting Sentiment in Arabic Tweets .134.....
Somar Bilal (Don State Technical University, Russia)
- Named Entity Recognition for Instructions of Chinese Medicine Based on Pre-Trained Language Model .139.....
Song Wen (Guangdong University of Technology, China), Bi Zeng (Guangdong University of Technology, China), and Wenxiong Liao (Guangdong University of Technology, China)
- Output Layer Go First: Better Fine-Tuning by Bridging the Gap with Pre-Training .145.....
Tianxiong Xiao (Beijing University of Posts and Telecommunications, China), Yuan Dong (Beijing University of Posts and Telecommunications, China), and Bin Dong (Ricoh Software Research Center Beijing Co., Ltd., China)
- Design and Implementation of a Sign Language Translation System for Deaf People .150.....
Ying He (XinJiang University, China), Alifu Kuerban (XinJiang University, China), Qingling Yu (XinJiang University, China), and Qina Xie (XinJiang University, China)

Naïve Bayes and Named Entity Recognition for Requirements Mining in Job Postings .155.....	<i>Simon Wild (Hitachi Powergrids, Switzerland), Soyhan Parlar (Zühlke Group, Switzerland), Thomas Hanne (University of Applied Sciences and Arts Northwestern Switzerland, Switzerland), and Rolf Dornberger (University of Applied Sciences and Arts Northwestern Switzerland, Switzerland)</i>
Well-Behaved Transformer for Chinese Medical NER .162.....	<i>Zhichang Zhang (Northwest Normal University, China), Xiaohui Qin (Northwest Normal University, China), Yanlong Qiu (Northwest Normal University, China), and Dan Liu (Northwest Normal University, China)</i>
Multi-Lingual Transfer Learning for Intent Classification .168.....	<i>Yutong Zhou (South China Normal University, China)</i>
A Semantic Matching Method Based on Dynamic Encoding and Dual-Attention .174.....	<i>Dianwei Chi (Shandong Vocational University of Foreign Affairs, China) and Qinghui Wang (Hefei University of Technology)</i>

Session 5: Target Detection and Intelligent Recognition

YOLOv3 Target Detection Algorithm Based on Channel Attention Mechanism .179.....	<i>Daxiang Li (Xi'an University of Posts and Telecommunications, China), Chao Huang (Xi'an University of Posts and Telecommunications, China), and Ying Liu (Xi'an University of Posts and Telecommunications, China)</i>
Person Re-Identification Algorithm Based on Siamese LSTM .184.....	<i>Daxiang Li (Xi'an University of Posts and Telecommunications, China), Rui Meng (Xi'an University of Posts and Telecommunications, China), and Ying Liu (Xi'an University of Posts and Telecommunications, China)</i>
Research on Fall Detection Algorithm Based on CNN and LSTM .190.....	<i>Gang Yang (Xi'an University of Posts and Telecommunications, China), Jie Zhao (Xi'an University of Posts and Telecommunications, China), and Jian Guo (Xi'an University of Posts and Telecommunications, China)</i>
A Fall Warning System for the Elderly with Multiple Nodes Based on DTW Algorithm .196.....	<i>Jian Guo (Xi'an University of Posts & Telecommunications, China), Gang Yang (Xi'an University of Posts & Telecommunications, China), and Jie Zhao (Xi'an University of Posts and Telecommunications, China)</i>
Target Recognition Method of Laser Imaging Fuze Based on Deep Transfer Learning .202.....	<i>Qian Tang (Xi'an University of Posts and Telecommunications, China) and Wei He (Xi'an University of Posts and Telecommunications, China)</i>
Self-Face Recognition in Schizophrenia: A Meta-Analysis .208.....	<i>Ting Wang (Jiangxi University of Traditional Chinese Medicine, China), Yue Pu (Jiangxi University of Traditional Chinese Medicine, China), Sanrong Xiao (Nanchang University, China), Wenjia Li (Nanchang University, China), Xiaofen Song (Nanchang University, China), and Xiaotong Liu (Nanchang University, China)</i>

Session 6: Image Processing and Application

- Face Inpainting Combining Structured Forest Edge Information and Gated Convolution .213.....
*Fuping Wang (Xi'an University of Posts and Telecommunications, China),
Wenlou Li (Xi'an University of Posts and Telecommunications, China),
Ying Liu (Xi'an University of Posts and Telecommunications, China),
Yanchao Gong (Xi'an University of Posts and Telecommunications,
China), Ziming Gao (Xi'an University of Posts and Telecommunications,
China), and Jin Lu (Xi'an University of Posts and Telecommunications,
China)*
- Adaptive Double Suppressed Fuzzy C-Means Clustering Image Segmentation Algorithm Based on
Regional Information Entropy and Fuzzy Partition .218.....
*Rong Lan (Xi'an University of Posts and Telecommunications, China),
Tianlong Hu (Xi'an University of Posts and Telecommunications, China),
Qiang Zhao (Xi'an University of Posts and Telecommunications, China),
Haiyan Yu (Xi'an University of Posts and Telecommunications, China),
Feng Zhao (Xi'an University of Posts and Telecommunications, China),
and Lu Zhang (Xi'an University of Posts and Telecommunications, China)*
- Image Enhancement of Low Light UAV via Global Illumination Self-Aware Feature Estimation .225
*Jingyu Niu (Xi'an University of Posts and Telecommunications, China),
Dianwei Wang (Xi'an University of Posts and Telecommunications,
China), Pengfei Han (Xi'an University of Posts and Telecommunications,
China), Jie Fang (Xi'an University of Posts and Telecommunications,
China), Xincheng Ren (Yan'an University, China), Yongrui Qin
(University of Huddersfield, UK), and Zhijie Xu (University of
Huddersfield, UK)*
- Auroral Image Super-Resolution via Dynamic Nonlocal Intensity Fusion and Low-Rank
Regularization .232.....
*Fan Hu (Xi'an University of Posts and Telecommunications, China) and
Xinxin Zhu (Xi'an University of Posts and Telecommunications, China)*
- Auroral Ridge Extraction via Estimating Auroral Probability Map .237.....
*Yi Wu (Xi'an University of Posts and Telecommunications, China) and
Tongxin Xue (Xi'an University of Posts and Telecommunications, China)*
- Coarse-Fine Surrogate Model Driven Preference-Based Multi-Objective Evolutionary Fuzzy
Clustering Algorithm for Color Image Segmentation .242.....
*Feng Zhao (Xi'an University of Posts and Telecommunications, China)
and Feifan Liu (Xi'an University of Posts and Telecommunications,
China)*
- Intervertebral Discs Localization and Segmentation Based on Broad Learning System and
IPU-Net .248.....
*Feng Zhao (Xi'an University of Posts and Telecommunications, China),
Kai Dang (Xi'an University of Posts and Telecommunications, China),
and Hanqiang Liu (Shaanxi Normal University, China)*
- A Multi-Layer Feature Parallel Processing Method for Image Captioning .255.....
*Chan He (Xi'an University of Posts and Telecommunications, China),
Qiujuan Tong (Xi'an University of Posts and Telecommunications,
China), Xiaobao Yang (Northwestern Polytechnical University, China),
Jun Wang (Xi'an University of Posts and Telecommunications, China),
and Tingge Zhu (Xi'an University of Posts and Telecommunications,
China)*

Research on Image Caption Based on Multiple Word Embedding Representations .262.....
*Zhen-Xian Lin (Xi'an University of Posts and Telecommunications),
Jia-Xin Qu (Xi'an University of Posts and Telecommunications),
Xiao-Bao Yang (Northwestern Polytechnical University), Zhi-Qiang Hou
(Xi'an University of Posts and Telecommunications), and Chen Ding
(Xi'an University of Posts and Telecommunications)*

Automatic Diagnosis System for Lumbar Intervertebral Disc .267.....
*Jiamin Gong (Xi'an University of Posts and Telecommunications, China)
and Kaize Zhang (Xi'an University of Posts and Telecommunications,
China)*

Author Index 273.