ISSN 0479-8023 CN 11-2442/N CODEN PCTHAP



## 自然科学版

# ACTA SCIENTIARUM NATURALIUM UNIVERSITATIS PEKINENSIS

第59卷 第1期

2023

### 北京大学学报

(自然科学版)

第59卷 第1期

总第 315 期

#### 目 次

## 专题报道:面向人工智能的自然语言分析与理解 基于单词领域特征敏感的多领域神经机器翻译………………………………………………………………… 黄增城 满志博 张玉洁 等 (1) 依据《中国图书馆分类法》的英文图书分类探索………………………………… 蒋彦廷 (11) 基于多信息感知的多方对话问答方法 ………………………………………………………………… 高晓倩 周夏冰 张民 (21) 融合语境语义差异特征的短文本匹配模型 …………………………………………… 张文慧 汪美玲 侯志荣 (30) 多模态与文本预训练模型的文本嵌入差异研究…………………………………… 孙宇冲 程曦苇 宋春华 等 (48) 基于联合学习的少样本多类别情感分类方法………………………………………… 李子成 常晓琴 李雅梦 等 (57) 基于预训练模型和混合神经网络的医疗实体关系抽取…………………………………… 赵升升 张俊朋 孟佳娜 等 (65) 知识驱动的事件双曲嵌入时序关系抽取方法研究……………………………… 段建勇 戴诗伟 王昊 等 (76) 基于角色信息引导的多轮事件论元抽取 ……………………………………………… 于媛芳 张勇 左皓阳 等 (83) 湟水河西宁段水体和沉积物中氮素转化关键过程与影响因素分析…………………………… 尚韵依 李治龙 孙立宇 等 (92) 城市立交桥洞内涝过程的精细化模拟研究 ………………………………………………叶裕佳 秦华鹏 毛俊祺 (105) 汉江水体和沉积物中噬菌体特征研究 …………………………………………孙立宇 尚韵依 李治龙 等 (125) 华北克拉通恒山地区晚太古代变质火山岩的地球化学特征及构造意义 …………高山松 李秋根 胡鹏月 等 (143) 老年人和青年人的共情差异 自我聚焦对社交焦虑个体外部注意与状态焦虑的作用

## ACTA SCIENTIARUM NATURALIUM UNIVERSITATIS PEKINENSIS

Vol. 59 No. 1 Total No. 315

#### **CONTENTS**

Special Topic: Natura	l Language Analysis and	Understanding in	Artificial Intelligence
Special Topics Matara	i Bunguuge rinurysis und	· · · · · · · · · · · · · · · · · · ·	THE CHILCHAR THE CHILD

Word-Based Domain Feature-Sensitive Multi-domain Neural			
Machine Translation ····································			
English Books Automatic Classification According to CLC			
A Multi-information Perception Based Method for Question			
Answering in Multi-party Conversation · · · · · · GAO Xiaoqian, ZHOU Xiabing, ZHANG Min (21)			
A Short Text Matching Model Incorporating Contextual			
Semantic Differences			
Document Constrained Translation Quality Estimation Model····· FENG Qin, GONG Zhengxian, YE Heng, et al (39)			
Difference between Multi-modal vs. Text Pre-trained			
Models in Embedding Text ······ SUN Yuchong, CHENG Xiwei, SONG Ruihua, et al (48)			
A Joint Learning Approach to Few-Shot Learning for Multi-category			
Sentiment Classification · · · · LI Zicheng, CHANG Xiaoqin, LI Yameng, et al (57)			
Medical Entity Relation Extraction Based on Pre-trained			
Model and Hybrid Neural Network······ZHAO Dandan, ZHANG Junpeng, MENG Jiana, et al (65)			
Exploration of Knowledge Driven Event Hyperbolic Embedding			
Temporal Relation Extraction Method · · · · · DUAN Jianyong, DAI Shiwei, WANG Hao, et al (76)			
Multi-turn Event Argument Extraction Based on			
Role Information Guidance			
* * * * *			
Microbial Nitrogen Transformation Key Processes and Its Influencing Factors			
in Water and Sediment of Xining Section of the Huangshui River ······SHANG Yunyi, LI Zhilong, SUN Liyu, et al (92)			
Research on Refined Simulation of Waterlogging Process in Urban Overpass Tunnels · · · YE Yujia, QIN Huapeng, MAO Junqi (105)			
Synthesis of PHB by Recombinant E. coli Using Acetic			
Acid and Lactic Acid as Carbon Sources ············XIAO Meng, JIANG Ying, CUI Yixuan, et al (115)			
Characteristics of Phages in Water and Sediments of Hanjiang River····· SUN Liyu, SHANG Yunyi, LI Zhilong, et al (125)			
Microscopic Occurrence Types of Jimsar Continental Shale Oil····· DING Zhenhua, SHI Xiang, SONG Ping, et al (133)			
Geochemical Features and Tectonic Significance of Late Archean			
Metavolcanic Rocks in Hengshan Area, North China Craton GAO Shansong, LI Qiugen, HU Pengyue, et al (143)			
Empathy Differences between the Elderly and the Young:			
Discrepancies in Positive and Negative Emotions ······PANG Fangfang, CHEN Wei, SU Ying, et al (161)			
Effects of Self-Focus on External Attention and State Anxiety in Social Anxiety:			
Evidence from Eye-Movement and Physiological Measures·······CHEN Huijing, LIN Muyu, QIAN Mingyi (170)			