Contents

Fundamentals on Language Computing

Integrating Structural Context with Local Context for Disambiguating Word Senses .................................................. 3
Qianlong Du, Chengqing Zong, and Keh-Yih Su

Tibetan Multi-word Expressions Identification Framework Based on News Corpora ......................................................... 16
Minghua Nuo, Congjun Lun, and Huidan Liu

Building Powerful Dependency Parsers for Resource-Poor Languages ........ 27
Junjie Yu, Wenliang Chen, Zhenghua Li, and Min Zhang

Bidirectional Long Short-Term Memory with Gated Relevance Network for Paraphrase Identification ............................... 39
Yatian Shen, Jifan Chen, and Xuanjing Huang

Syntactic Categorization and Semantic Interpretation of Chinese Nominal Compounds ....................................................... 51
Taizhong Wu, Jian Liu, Xuri Tang, Min Gu, Yanhui Gu, Junsheng Zhou, and Weiguang Qu

TDSS: A New Word Sense Representation Framework for Information Retrieval ................................................................. 63
Liwei Chen, Yansong Feng, and Dongyan Zhao

A Word Vector Representation Based Method for New Words Discovery in Massive Text ..................................................... 76
Yang Du, Hua Yuan, and Yu Qian

Machine Translation and Multi-lingual Information Access

Better Addressing Word Deletion for Statistical Machine Translation .......... 91
Qiang Li, Dongdong Zhang, Mu Li, Tong Xiao, and Jingbo Zhu

A Simple, Straightforward and Effective Model for Joint Bilingual Terms Detection and Word Alignment in SMT ................ 103
Guoping Huang, Jiajun Zhang, Yu Zhou, and Chengqing Zong

Bilingual Parallel Active Learning Between Chinese and English .............. 116
Longhua Qian, JiaXin Liu, Guodong Zhou, and Qiaoming Zhu
Study on the English Corresponding Unit of Chinese Clause

Wenhe Feng, Yi Yang, Yancui Li, Xia Li, and Han Ren

Research for Uyghur-Chinese Neural Machine Translation

Jinying Kong, Yating Yang, Xi Zhou, Lei Wang, and Xiao Li

MaxSD: A Neural Machine Translation Evaluation Metric Optimized by Maximizing Similarity Distance

Qingsong Ma, Fandong Meng, Daqi Zheng, Mingxuan Wang, Yvette Graham, Wenbin Jiang, and Qun Liu

Automatic Long Sentence Segmentation for Neural Machine Translation

Shaohui Kuang and Deyi Xiong

Machine Learning for NLP

Topic Segmentation of Web Documents with Automatic Cue Phrase Identification and BLSTM-CNN

Liang Wang, Sujian Li, Xinyan Xiao, and Yajuan Lyu

Multi-task Learning for Gender and Age Prediction on Chinese Microblog

Liang Wang, Qi Li, Xuan Chen, and Sujian Li

Dropout Non-negative Matrix Factorization for Independent Feature Learning

Zhicheng He, Jie Liu, Caihua Liu, Yuan Wang, Airu Yin, and Yalou Huang

Analysing the Semantic Change Based on Word Embedding

Xuanyi Liao and Guang Cheng

Learning Word Sense Embeddings from Word Sense Definitions

Qi Li, Tianshi Li, and Baobao Chang

Information Extraction, Question Answering and Knowledge Acquisition

Character-Based LSTM-CRF with Radical-Level Features for Chinese Named Entity Recognition

Chuanhai Dong, Jiajun Zhang, Chengqing Zong, Masanori Hattori, and Hui Di

Improving First Order Temporal Fact Extraction with Unreliable Data

Bingfeng Luo, Yansong Feng, Zheng Wang, and Dongyan Zhao

Reducing Human Effort in Named Entity Corpus Construction Based on Ensemble Learning and Annotation Categorization

Tingming Lu, Man Zhu, and Zhiqiang Gao
A Convolution BiLSTM Neural Network Model for Chinese Event Extraction 275
  Ying Zeng, Honghui Yang, Yansong Feng, Zheng Wang, and Dongyan Zhao

Detection of Entity Mixture in Knowledge Bases Using Hierarchical Clustering 288
  Haihua Xie, Xiaoqing Lu, Zhi Tang, and Xiaojun Huang

Knowledge Base Question Answering Based on Deep Learning Models 300
  Zhiwen Xie, Zhao Zeng, Guangyou Zhou, and Tingting He

An Open Domain Topic Prediction Model for Answer Selection 312
  Zhao Yan, Nan Duan, Ming Zhou, Zhoujun Li, and Jianshe Zhou

Joint Event Extraction Based on Skip-Window Convolutional Neural Networks 324
  Zhengkuan Zhang, Weiran Xu, and Qianqian Chen

Improving Collaborative Filtering with Long-Short Interest Model 335
  Chao Lv, Lili Yao, Yansong Feng, and Dongyan Zhao

Discourse Analysis

Leveraging Hierarchical Deep Semantics to Classify Implicit Discourse Relations via Mutual Learning Method 349
  Xiaohan She, Ping Jian, Pengcheng Zhang, and Heyan Huang

Transition-Based Discourse Parsing with Multilayer Stack Long Short Term Memory 360
  Yanyan Jia, Yansong Feng, Bingfeng Luo, Yuan Ye, Tianyang Liu, and Dongyan Zhao

Predicting Implicit Discourse Relation with Multi-view Modeling and Effective Representation Learning 374
  Haoran Li, Jiajun Zhang, Yu Zhou, and Chengqing Zong

A CDT-Styled End-to-End Chinese Discourse Parser 387
  Fang Kong, Hongling Wang, and Guodong Zhou

NLP for Social Media

Events Detection and Temporal Analysis in Social Media 401
  Yawei Jia, Jing Xu, Zhonghu Xu, and Kai Xing

Discovering Concept-Level Event Associations from a Text Stream 413
  Tao Ge, Lei Cui, Heng Ji, Baobao Chang, and Zhifang Sui
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A User Adaptive Model for Followee Recommendation on Twitter</td>
<td>425</td>
</tr>
<tr>
<td>Yang Liu, Xuan Chen, Sujian Li, and Liang Wang</td>
<td></td>
</tr>
<tr>
<td>Who Will Tweet More? Finding Information Feeders in Twitter</td>
<td>437</td>
</tr>
<tr>
<td>Beibei Gu, Zhunchen Luo, and Xin Wang</td>
<td></td>
</tr>
<tr>
<td><strong>Short Papers</strong></td>
<td></td>
</tr>
<tr>
<td>Discrete and Neural Models for Chinese POS Tagging: Comparison and Combination</td>
<td>451</td>
</tr>
<tr>
<td>Meishan Zhang, Nan Yu, and Guohong Fu</td>
<td></td>
</tr>
<tr>
<td>Improving Word Vector with Prior Knowledge in Semantic Dictionary</td>
<td>461</td>
</tr>
<tr>
<td>Wei Li, Yunfang Wu, and Xueqiang Lv</td>
<td></td>
</tr>
<tr>
<td>Adapting Attention-Based Neural Network to Low-Resource Mongolian-Chinese Machine Translation</td>
<td>470</td>
</tr>
<tr>
<td>Jing Wu, Hongxu Hou, Zhipeng Shen, Jian Du, and Jinting Li</td>
<td></td>
</tr>
<tr>
<td>Sentence Similarity on Structural Representations</td>
<td>481</td>
</tr>
<tr>
<td>Meng Yang, Peifeng Li, and Qiaoming Zhu</td>
<td></td>
</tr>
<tr>
<td>Word Sense Disambiguation Using Context Translation</td>
<td>489</td>
</tr>
<tr>
<td>Zhizhuo Yang, Hu Zhang, Qian Chen, and Hongye Tan</td>
<td></td>
</tr>
<tr>
<td>Cyrillic Mongolian Named Entity Recognition with Rich Features</td>
<td>497</td>
</tr>
<tr>
<td>Weihua Wang, Feilong Bao, and Guanglai Gao</td>
<td></td>
</tr>
<tr>
<td>Purchase Prediction via Machine Learning in Mobile Commerce</td>
<td>506</td>
</tr>
<tr>
<td>Chao Lv, Yansong Feng, and Dongyan Zhao</td>
<td></td>
</tr>
<tr>
<td>Exploring Long Tail Data in Distantly Supervised Relation Extraction</td>
<td>514</td>
</tr>
<tr>
<td>Yaocheng Gui, Qian Liu, Man Zhu, and Zhiqiang Gao</td>
<td></td>
</tr>
<tr>
<td>Detecting Potential Adverse Drug Reactions from Health-Related Social Networks</td>
<td>523</td>
</tr>
<tr>
<td>Bo Xu, Hongfei Lin, Mingzhen Zhao, Zhihao Yang, Jian Wang, and Shaowu Zhang</td>
<td></td>
</tr>
<tr>
<td>Iterative Integration of Unsupervised Features for Chinese Dependency Parsing</td>
<td>531</td>
</tr>
<tr>
<td>Te Luo, Yujie Zhang, Jinan Xu, and Yufeng Chen</td>
<td></td>
</tr>
<tr>
<td>Can We Neglect Function Words in Word Embedding?</td>
<td>541</td>
</tr>
<tr>
<td>Gongbo Tang, Gaoqi Rao, Dong Yu, and Endong Xun</td>
<td></td>
</tr>
</tbody>
</table>
A Similarity Algorithm Based on the Generality and Individuality of Words

Yinfeng Zou, Chunping Ouyang, Yongbin Liu, Xiaohua Yang, and Ying Yu

An Improved Information Gain Algorithm Based on Relative Document Frequency Distribution

Jian Peng, Xiao-Hua Yang, Chun-Ping Ouyang, and Yong-Bin Liu

Finding the True Crowds: User Filtering in Microblogs

Bin Hao, Min Zhang, Weizhi Ma, Jiashen Sun, Yiqun Liu, Shaoping Ma, Xuan Zhu, and Hengliang Luo

Learning to Recognize Protected Health Information in Electronic Health Records with Recurrent Neural Network

Kun Li, Yumei Chai, Hongling Zhao, Xiaofei Nan, and Yueshu Zhao

Sentiment Classification of Social Media Text Considering User Attributes

Junjie Li, Haitong Yang, and Chengqing Zong

Learning from User Feedback for Machine Translation in Real-Time

Guoping Huang, Jiajun Zhang, Yu Zhou, and Chengqing Zong

GuideRank: A Guided Ranking Graph Model for Multilingual Multi-document Summarization

Haoran Li, Jiajun Zhang, Yu Zhou, and Chengqing Zong


Wuying Liu and Lin Wang

Value at Risk for Risk Evaluation in Information Retrieval

Meijia Wang, Peng Zhang, Dawei Song, and Jun Wang

Chinese Paraphrases Acquisition Based on Random Walk N Step

Jun Ma, Yujie Zhang, Jinan Xu, and Yufeng Chen

A Micro-topic Model for Coreference Resolution Based on Theme-Rheme Structure

Xue-feng Xi and Guodong Zhou

Learning from LDA Using Deep Neural Networks

Dongxu Zhang, Tianyi Luo, and Dong Wang

Relation Classification: CNN or RNN?

Dongxu Zhang and Dong Wang
Shared Tasks

Ensemble of Feature Sets and Classification Methods for Stance Detection . . 679
Jiaming Xu, Suncong Zheng, Jing Shi, Yiqun Yao, and Bo Xu

Exploiting External Knowledge and Entity Relationship for Entity Search . . 689
Le Li, Junyi Xu, Weidong Xiao, Shengze Hu, and Haiming Tong

A Flexible and Sentiment-Aware Framework for Entity Search . . . . . . 701
Kerui Min, Chenghao Dong, Shiyuan Cai, and Jianhao Chen

Word Segmentation on Micro-Blog Texts with External Lexicon
and Heterogeneous Data ........................................... 711
Qingrong Xia, Zhenghua Li, Jiayuan Chao, and Min Zhang

Open Domain Question Answering System Based on Knowledge Base . . . 722
Yuxuan Lai, Yang Lin, Jiahao Chen, Yansong Feng, and Dongyan Zhao

Recurrent Neural Word Segmentation with Tag Inference . . . . . . . . . . . 734
Qianrong Zhou, Long Ma, Zhenyu Zheng, Yue Wang, and Xiaojie Wang

Chinese Word Similarity Computing Based on Combination Strategy . . . 744
Shaoru Guo, Yong Guan, Ru Li, and Qi Zhang

An Empirical Study on Chinese Microblog Stance Detection
Using Supervised and Semi-supervised Machine Learning Methods. . . . . . 753
Liran Liu, Shi Feng, Daling Wang, and Yifei Zhang

Combining Word Embedding and Semantic Lexicon for Chinese Word
Similarity Computation ............................................. 766
Jiahuan Pei, Cong Zhang, Degen Huang, and Jianjun Ma

Football News Generation from Chinese Live Webcast Script . . . . . . . . . 778
Tang Renjun, Zhang Ke, Na Shenruoyang, Yang Minghao, Zhou Hui,
Zhu Qingjie, Zhan Yongsong, and Tao Jiahua

Convolutional Deep Neural Networks for Document-Based Question
Answering . ............................................................ 790
Jian Fu, Xipeng Qiu, and Xuanjing Huang

Research on Summary Sentences Extraction Oriented to Live Sports Text . . 798
Liya Zhu, Wenchao Wang, Yujing Chen, Xueqiang Lv, and Jianshe Zhou

Short Papers

Statistical Entity Ranking with Domain Knowledge . . . . . . . . . . . . . . . . . 811
Xiao-Bo Jin, Guang-Gang Geng, Kaizhu Huang, and Zhi-Wei Yan
Combining Deep Learning with Information Retrieval for Question Answering

Fengyu Yang, Liang Gan, Aiping Li, Dongchuan Huang, Xiaohui Chou, and Hongmei Liu

917

A Hybrid Approach to DBQA

Fangying Wu, Muyun Yang, Tiejun Zhao, Zhongyuan Han, Dequan Zheng, and Shanshan Zhao

926

A Chinese Question Answering Approach Integrating Count-Based and Embedding-Based Features

Benyou Wang, Jiabin Niu, Liqun Ma, Yuhua Zhang, Lipeng Zhang, Jingfei Li, Peng Zhang, and Dawei Song

934

Overview of the NLPCC-ICCPOL 2016 Shared Task: Open Domain Chinese Question Answering

Nan Duan

942

Author Index

949
Natural Language Understanding and Intelligent Applications
ISBN: 978-3-319-50495-7