

The 31st

ROCLING 2019

October 3-5, 2019, New Taipei City, Taiwan

Proceedings of the Thirty-first Conference on Computational
Linguistics and Speech Processing

**Proceedings of the Thirty-first Conference on
Computational Linguistics and Speech**

Processing ROCLING XXXI (2019)

October 3-5, 2019

National Taipei University, New Taipei City, Taiwan

Organizers

National Taipei University

Tamkang University

Association for Computational Linguistics and Chinese Language
Processing

Institute of Information Science, Academia Sinica

Research Center for Information Technology Innovation, Academia Sinica

Sponsors

Ministry of Science and Technology

Ministry of Education

Cyberon Corporation

Chunghwa Telecom Laboratories

Institute for Information Industry

eLAND Information Co., Ltd.

Delta Electronics, Inc.

First Published October 2019

By The Association for Computational Linguistics and Chinese Language Processing
(ACLCLP)

Copyright©2019 the Association for Computational Linguistics and Chinese
Language Processing (ACLCLP), Authors of Papers

Each of the authors grants a non-exclusive license to the ACLCLP to publish the
paper in printed form. Any other usage is prohibited without the express permission
of the author who may also retain the on-line version at a location to be selected by
him/her.

Chen-Yu Chiang, Min-Yuh Day, Jen-Tzung Chien, Ying-Hui Lai, Jenq-Haur Wang,
Hung-Yi Lee, Yu Tsao, Kuan-Yu Memphis Chen, Shih-Hung Wu, Chih-Hua Tai (eds.)

Proceedings of the Thirty-first Conference on Computational Linguistics and
Speech Processing (ROCLING XXXI)

2019-10-3/2019-10-4

ACLCLP

2019-10

ISBN 978-986-95769-2-5

Welcome Message of the ROCLING 2019

On behalf of the organization committee, it is our pleasure to welcome you to National Taipei University (NTPU) in New Taipei City, Taiwan, for the 31st Conference on Computational Linguistics and Speech Processing (ROCLING), the flagship conference on computational linguistics, natural language processing, and speech processing in Taiwan. ROCLING is the annual conference of the Computational Linguistics and Chinese Language Processing (ACLCLP) which is held in autumn in different cities and universities in Taiwan.

ROCLING 2019 features two distinguished keynote speeches from the renowned speakers in natural language processing as well as speech processing. Prof. Nobuaki Minematsu (Full Professor, Department of Electrical Engineering and Information Systems, Graduate School of Engineering, The University of Tokyo) will give a keynote on “How can speech technologies support learners to improve their skills of speaking, listening, conversation and more?”. Prof. Yoshinobu Kano (Associate Professor, Faculty of Informatics, Shizuoka University) will speak on “Beyond end-to-end learning: Dialog system, sentence generation, and conversation analysis for automatic mental disorder diagnosis”.

ROCLING 2019 will provide an international forum for researchers and industry practitioners to share their new ideas, original research results and practical development experiences from all NLP areas, including computational linguistics, information understanding, and speech processing. In addition to the regular conference sessions during October 3-4, 2019, the AI Tutorial organized by SIG-AI (Artificial Intelligence Special Interest Group) of ACLCLP (convener: Hung-Yi Lee, Assistant professor of the Department of Electrical Engineering of National Taiwan University) and The Science & Technology Policy Research and Information Center (STPI) will provide Artificial Intelligence Courses that focus on speech processing and NLP applications on October 5, 2019. ROCLING 2019 is sure to be an exciting event for all who attend.

This conference would not have been possible without the tremendous effort of organizing committee of dedicated and motivated research leaders have worked closely together to put together the attractive and intensive scientific program. Their great achievements have contributed much to the visibility of ROCLING 2019. We would like to heartedly thank them all. Special thanks to organizers who have worked hard to produce the proceedings, communicate with participants/authors, and handle the registration, budget, local arrangements and logistics. Thank you to all organizers including Program Chairs: Ying-Hui Lai and Jenq-Haur Wang, Tutorial Chair: Hung-Yi Lee, Industry Track Chair: Yu Tsao, Doctoral Consortium Chair: Kuan-Yu Memphis Chen, Academic Demo Track Chair: Hung-Yi Lee, Publication Chair: Shih-Hung Wu, Web Chair: Chih-Hua Tai, to participants, to authors who submitted papers and to program committee members and the reviewers who invested their valuable time and effort to provide timely and comprehensive reviews. Finally, we thank the generous government, academic and industry sponsors and appreciate your enthusiastic participation and support. Best wishes a successful and fruitful ROCLING 2019 in New Taipei, Taiwan.

General Chairs

Chen-Yu Chiang, Min-Yuh Day, and Jen-Tzung Chien

Organizing Committee

Conference Co-Chairs

Chen-Yu Chiang, National Taipei University

Min-Yuh Day, Tamkang University

Jen-Tzung Chien, National Chiao Tung University

Program Chairs

Ying-Hui Lai, National Yang-Ming University

Jenq-Haur Wang, National Taipei University of Technology

Tutorial Chair

Hung-Yi Lee, National Taiwan University

Industry Track Chair

Yu Tsao, Academia Sinica

Doctoral Consortium Chair

Kuan-Yu Memphis Chen, National Taiwan University of Science and Technology

Academic Demo Track Chair

Hung-Yi Lee, National Taiwan University

Publication Chair

Shih-Hung Wu, Chaoyang University of Technology

Web Chair

Chih-Hua Tai, National Taipei University

**Proceedings of the Thirty-first Conference on
Computational Linguistics and Speech
Processing ROCLING XXXI (2019)**

TABLE OF CONTENTS

Preface	i
<u>基於特徵粒度之訓練策略於中文口語問答系統之應用</u> Shang-Bao Luo, Kuan-Yu Chen	1
<u>新穎的序列生成架構於中文重寫式摘要之研究</u> Chin-Yueh Chien, Kuan-Yu Chen	3
<u>EBSUM: 基於 BERT 的強健性抽取式摘要法</u> Zheng-Yu Wu, Kuan-Yu Chen	13
<u>GALs: 基於對抗式學習之整列式摘要法</u> Chia-Chih Kuo, Kuan-Yu Chen	15
<u>結合類神經網路及文件概念圖之文件檢索研究</u> Chia-Hsin Lu, Jenq-Haur Wang	25
<u>室內遠距離語音辨識實驗</u> Hsuan-Sheng Chiu, Jyh-Her Yang	35
<u>基於 BERT 模型之多國語言機器閱讀理解研究</u> Cheng-Xuan Wu, Jenq-Haur Wang	47
<u>預訓練詞向量模型應用於客服對話系統意圖偵測之研究</u> Guan-Yu Chen, Min-Feng Kuo, Tsung-Hsien Yang, Chun-Hsun Chen, I-Bin Liao	62
<u>A Hybrid Approach of Deep Semantic Matching and Deep Rank for Context Aware Question Answer System</u> Shu-Yi Xie, Chia-Hao Chang, Zhi Zhang, Yang Mo, Lian-Xin Jiang, Yu-Sheng Huang, Jian-Ping Shen	72
<u>A Real-World Human-Machine Interaction Platform in Insurance Industry</u> Wei Tan, Chia-Hao Chang, Yang Mo, Lian-Xin Jiang, Gen Li, Xiao-Long Hou, Chu Chen, Yu-Sheng Huang, Meng-Yuan Huang, Jian-Ping Shen	82
<u>結合 LDA 與 SVM 之社群使用者立場檢測</u> I-Huan Weng, Jenq-Haur Wang	92
<u>Sequence to Sequence Convolutional Neural Network for Automatic Spelling Correction</u> Daniel Hládek, Matúš Pleva, Ján Staš, Yuan-Fu Liao	102

<u>基於深度學習之簡答題問答系統初步探討</u>	
Yu-Chen Lin, Yuan-Fu Liao, Matúš Pleva, Daniel Hládek	112
<u>基於遞迴類神經網路之麥克風嘯叫抑制系統</u>	
Cheng-Yang Lin, Yuan-Fu Liao, Chen-Ming Pan, Tzu-Hsiu Kuo	122
<u>基於深度類神經網路之多模式情感偵測初步探討</u>	
Tai-Rong Chen, Yuan-Fu Liao, Chen-Ming Pan, Tzu-Hsiu Kuo, Matúš Pleva, Daniel Hládek	137
<u>適合漸凍人使用之語音轉換系統初步研究</u>	
Bai-Hong Huang, Yuan-Fu Liao, Matúš Pleva, Daniel Hládek	152
<u>Bilingual Parallel Sentence Extraction from Comparable Corpora</u>	
Chien-Yu Chien, Chin-Hua Chang, Chih-Ping Wei	167
<u>基於卷積神經網路之台語關鍵詞辨識</u>	
Chi-Hung Liu, Ren-Yuan Lyu, Wei-Zhong Zhan, Jie-Shu Wu, Da-Dao Zhu, Jun-Liang Shi	182
<u>Extracting Semantic Representations of Sexual Biases from Word Vectors</u>	
Ying-Yu Chen, Shu-Kai Hsieh	192
<u>植基於深度學習假新聞人工智慧偵測：台灣真實資料實作</u>	
Chih-Chien Wang, Min-Yuh Day, Lin-Lung Hu	202
<u>使用生成對抗網路於強健式自動語音辨識的應用</u>	
Ming-Jhang Yang, Fu-An Chao, Tien-Hong Lo, Berlin Chen.....	212
<u>Speech enhancement based on the integration of fully convolutional network, temporal lowpass filtering and spectrogram masking</u>	
Kuan-Yi Liu, Syu-Siang Wang, Yu Tsao, Jehi-weih Hung	226
<u>MONPA: 中文命名實體及斷詞與詞性同步標註系統</u>	
Wen-Chao Yeh, Yu-Lun Hsieh, Yung-Chun Chang, Wen-Lian Hsu	241
<u>使用語者轉換技術於語音合成資料庫之音質改進</u>	
Yan-ting Lin, Chen-yu Chiang	246
<u>即時中文語音合成系統</u>	
An-Chieh Cheng, Chia-Ping Chen	256
<u>探究端對端語音辨識於發音檢測與診斷</u>	
Hsiu-Jui Chang, Tien-Hong Lo, Tzu-En Liu, Berlin Chen	266
<u>基於語境特徵及分群模型之中文多義詞消歧</u>	
Yu-Yuan Lee, Tzu-Hao Chou, Chao-Lin Liu	281
<u>Influences of Prosodic Feature Replacement on the Perceived Singing Voice Identity</u>	
Kuan-Yi Kang, Yi-Wen Liu, Hsin-Min Wang	296
<u>以三元組損失微調時延神經網路語者嵌入函數之語者辨識系統</u>	
Chih-Ting Yehn, Po-Chin Wang, Su-Yu Zhang, Chia-Ping Che	310
<u>Building of children speech corpus for improving automatic subtitling services</u>	
Matus Pleva, Stanislav Ondas, Daniel Hládek, Jozef Juhar, Ján Staš, Yuan-Fu Liao	325

<u>基於階層式編碼架構之文本可讀性預測</u>	Shi-Yan Weng, Hou-Chiang Tseng, Yao-Ting Sung, Berlin Chen	334
<u>國語語音辨識系統中之人名語言模型</u>	Hong-Bin Liang, Yih-Ru Wang	343
<u>基於 Seq2Seq 模型的中文文法錯誤診斷系統</u>	Jun-Wei Wang, Sheng-Lun Chien, Yi-Kun Chen, Shih-Hung Wu	358
<u>應用文脈分析於中英夾雜語音合成系統</u>	Yi-Hsiang Hung, Yi-Chin Huang, Guang-Feng Deng	368
<u>基於有向圖與爭論導向摘要的網路辯論之爭論元素辨識</u>	Chi-An Wei, Hung-Yu Kao	378
<u>利用 Attentive 來改善端對端中文語篇剖析遞迴類神經網路系統</u>	Yu-Jen Wang, Chia-Hui Chen	388
<u>Four-word Idioms Containing Opposites in Mandarin</u>	Siaw-Fong Chung	398
<u>漢語及物化的大數據研究</u>	Wei-Tien Dylan Tsai, Ching-Yu Helen Yang, Chen Ying-Zhu, Jhih-Jie Chen, Jason S. Chang	408
<u>基於訊息配對相似度估計的聊天記錄解構</u>	ZhiXian Liu, Chia-Hui Chang	423
<u>標註英中同步樣式文法之研究</u>	Ching-Yu Yang, Ying-Zhu Chen, Yi-Chien Lin, Wei-tian Dylan Tsai, Jason S Chang ...	424