

The 29th

ROCLING 2017

November 27-28, 2017, Taipei, Taiwan

Proceedings of the Twenty-Ninth Conference on
Computational Linguistics and Speech Processing

**Proceedings of the Twenty-Ninth Conference
on Computational Linguistics and Speech**

Processing ROCLING XXIX (2017)

November 27-28, 2017

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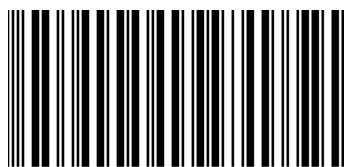
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Welcome Message of the ROCLING 2017

On behalf of the organization committee and program committee, it is our pleasure to welcome you to Nangang Exhibition Center, Taipei, Taiwan, for the 29th 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. This year, we received 38 valid submissions, each of which was reviewed by at least three experts on the basis of originality, significance, technical soundness, and relevance to the conference. In total, we have 19 oral papers and 13 poster papers, which cover the areas including spoken language processing and speech recognition, text-to-speech, natural language processing, speech emotion recognition, information extraction, and question answering. We are grateful to the contribution of the reviewers for their extraordinary efforts and valuable comments.

ROCLING 2017 also features two distinguished lectures from the renowned speakers in speech processing as well as natural language processing. Prof. Chin-Hui Lee (Professor at the School of Electrical and Computer Engineering, Georgia Institute of Technology) will lecture on “Speech Processing Research: Past, Present and Future”, and Prof. Ting Liu (A vice dean and full professor of the School of Computer Science, Harbin Institute of Technology, P. R. China) will speak on “Data, knowledge, and Algorithm in NLP”.

Finally, we thank the generous government, academic and industry sponsors and appreciate your enthusiastic participation and support. Best wishes a successful and fruitful ROCLING 2017 in Taipei.

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Keynote 1 –

Speech Processing Research: Past, Present and Future



Prof. Chin-Hui Lee

School of Electrical and Computer Engineering, Georgia
Institute of Technology

Monday, November 27, 2017 9:40-10:40

Location: Room 616

Biography

Dr. Lee received the B.S. degree in Electrical Engineering from National Taiwan University, Taipei, in 1973, the M.S. degree in Engineering and Applied Science from Yale University, New Haven, in 1977, and the Ph.D. degree in Electrical Engineering with a minor in Statistics from University of Washington, Seattle, in 1981.

Dr. Lee started his professional career at Verbex Corporation, Bedford, MA, and was involved in research on connected word recognition. In 1984, he became affiliated with Digital Sound Corporation, Santa Barbara, where he engaged in research and product development in speech coding, speech synthesis, speech recognition and signal processing for the development of the DSC-2000 Voice Server. Between 1986 and 2001, he was with Bell Laboratories, Murray Hill, New Jersey, where he became a Distinguished Member of Technical Staff and Director of the Dialogue Systems Research Department. His research interests include multimedia communication, multimedia signal and information processing, speech and speaker recognition, speech and language modeling, spoken dialogue processing, adaptive and discriminative learning, biometric authentication, and information retrieval. From August 2001 to August 2002 he was a visiting professor at School of Computing, The National University of Singapore. In September 2002, he joined the Faculty Georgia Institute of Technology.

Prof. Lee has participated actively in professional societies. He is a member of the IEEE Signal Processing Society (SPS), Communication Society, and the International Speech Communication Association (ISCA). In 1991-1995, he was an associate editor for the IEEE Transactions on Signal Processing and Transactions on Speech and Audio Processing. During the same period, he served as a member of the ARPA Spoken Language Coordination Committee. In 1995-1998 he was a member of the Speech Processing Technical Committee and later became the chairman from 1997 to 1998. In 1996, he helped promote the SPS Multimedia Signal Processing Technical Committee in which he is a founding member.

Abstract

Teaching machines to speak and listen to human languages has always been a fascination for scientists and engineers in modern history. Although such a dream is not easily realized, it is very common to visualize machines, computers and droids to do so in science fictions. Some of such wonders include HAL in 2001: A Space Odyssey, and R2-D2 and C-3PO in Star Wars. In the real world, speaking machines were first demonstrated by Homer Dudley of Bell Laboratories in 1939 World Fair in New York and the synthesized voice was radio-broadcasted to the US west coast. The technology has come a long way that we can now design machines to speak multiple languages fluently on various topics. On the other hand primitive listening machines were first developed at Bell Labs in the 1940s to recognize English digits. Nowadays we have seen many automated services and products that take human voice as inputs. The interactions between speech and production, hearing, language and acoustics were also studied a great deal around the same time, which later set the foundations for modern-day speech applications, such as speech coding and automatic recognition of speech, speaker and language. In the last thirty years of the 20th Century we witnessed a fast development of signal processing, speech modeling and digital hardware technologies which led to a global deployment of wireless speech communication and a widespread installations of speech recognition and synthesis products and services. More recently, a resurging of deep neural networks had started a new wave to speech technology advancements. Although the vision of developing machines to listen and talk had given speech researchers and engineers an amazing technology journey so far, we are also observing plenty of limitations that hinder the ubiquitous deployment of many speech applications to benefit the human society. Today we have now reached a new position that speech, language and acoustics research are being integrated into the emerging investment in artificial intelligence by internet companies and government agencies. Therefore speech processing research is expected to continue to prosper. Meanwhile, deep understanding on speech, hearing, language and acoustics will still be needed with increasing demands from challenging scenarios, such as machine acquisition of spoken languages, accent roles in language learning and communication, machine-aided human-human and human-machine communication, emotion and speech, speech and hearing impairs, speech disfluencies and potential neurological disorders, cocktail party effect, to name just a few.

Keynote 2 -

Data, Knowledge, and Algorithm in NLP



Prof. Ting Liu

A vice dean and full professor of the School of Computer Science, Harbin Institute of Technology, P. R. China

Tuesday, November 28, 2017 9:00-10:00

Location: Room 616

Biography

Liu Ting, Professor of Harbin Institute of Technology, director of Research Center of Social Computing and Information Retrieval. He served as area chair of the international conference ACL and EMNLP. His main research interests include Natural Language Processing and Social Computing. He developed Chinese Language Technology Platform (LTP) and Chinese language knowledge graph (Big Cilin) which has been widely used in Chinese NLP area.

Abstract

Derived by deep learning and big data, Natural Language Processing ushered in a golden age. Especially in the application field of full data, such as education, finance, justice, medical treatment and so on, Natural Language Processing constantly made important progress in the stage, and show unlimited broad prospects. This report examines the logic of Natural Language Processing's technological evolution, the current most important advances, and the challenges facing future applications from the three dimensions of data, knowledge, and algorithms.

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