CoNLL 2019

The 23rd Conference on Computational Natural Language Learning

Proceedings of the Conference

November 3–4, 2019
Hong Kong, China

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Introduction

The 2019 Conference on Computational Natural Language Learning (CoNLL) is the 23rd in the series of annual meetings organized by SIGNLL, the ACL special interest group on natural language learning. CoNLL 2019 will be held on November 3–4, 2019, and is co-located with the 2019 Conference on Empirical Methods in Natural Language Processing (EMNLP) in Hong Kong.

CoNLL 2019 followed the tradition of previous CoNLL conferences in inviting only long papers, in order to accommodate papers with experimental material and detailed analysis. The final, camera-ready submissions were allowed a maximum of nine content pages plus unlimited pages of references and supplementary material.

CoNLL 2019 received a record number of 485 submissions in total, out of which 97 papers were chosen to appear in the conference program (after desk-rejections and a few papers withdrawn by the authors during the review period), with an overall acceptance rate of 22%. 27 were selected for oral presentation, and the remaining 70 for poster presentation. All 97 papers appear as long papers here in the conference proceedings.

CoNLL 2019 features two invited speakers, Christopher Manning (Stanford University) and Gabriella Vigliocco (University College London). As in recent years, it also features one shared task: Cross-Framework Meaning Representation Parsing. Papers accepted for the shared tasks are published in companion volumes of the CoNLL 2019 proceedings.

We would like to thank all the authors who submitted their work to CoNLL 2019, and the program committee for helping us select the best papers out of many high-quality submissions. We are grateful to the many program committee members who did a thorough job reviewing our submissions. Due to the growing size of of the conference, we also had area chairs, for the second time, supporting the CoNLL organization. We were fortunate to have 24 excellent areas chairs who assisted us greatly in selecting the best program:

Jason Baldridge, Google AI Language, USA;
Laurent Besacier, Université Grenoble Alpes, France;
Chris Biemann, Universität Hamburg, Germany;
Asli Celikyilmaz, Microsoft Research, USA;
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Avirup Sil, IBM Research AI, USA;
Amanda Stent, Bloomberg Research, USA;

Mark Stevenson, University of Sheffield, UK;
Andreas Vlachos, University of Cambridge, UK.

We are immensely thankful to Julia Hockenmaier and to the members of the SIGNLL board for their valuable advice and assistance in putting together this year's program. We also thank Pieter Fivez and Marcely Zanon Boito for maintaining the CoNLL 2019 website, and Sebastian Ruder and Miikka Silfverberg for preparing the proceedings for the main conference. We would like to thank our hard working assistants Darryl Hannan, Ramakanth Pasunuru and Reyhaneh Hashempour for their support with data checking and publicity. Our heartfelt gratitude also goes to Rodrigo Wilkens for system administration and general START management.

Our thanks to the program co-chairs of CoNLL 2018, Anna Korhonen and Ivan Titov, who provided us with excellent advice and help; to Vera Demberg, Naoaki Okazaki, Priscilla Rasmussen and the EMNLP 2019 Organization Committee for their helpful advice on issues involving the conference venue and local organization.

We would also like to thank the following reviewers who were nominated for commendation: Peter Anderson; Awais Athar; Niranjan Balasubramanian; Joost Bastings; Lisa Beinborn; Robert Berwick; Xavier Carreras; Elizabeth Clark; Pablo Duboue; Asif Ekbal; Zhe Gan; Dan Garrette; Sebastian Gehrmann; Kevin Gimpel; Carlos Gomez-Rodriguez; William L. Hamilton; David Harwath; Jack Hessel; Jonathan K. Kummerfeld; Miryam de Lhoneux; Nelson F. Liu; Ryan McDonald; Einat Minkov; Preslav Nakov; Jason Naradowsky; Khanh Nguyen; Vlad Niculae; Brendan O'Connor; Niki Parmar; Rebecca J. Passonneau; Iria del Rio Gayo; Kenji Sagae; Marten van Schijndel; Kevin Small; Kristina Striegnitz; James Thorne; Diyi Yang.

Finally, our gratitude goes to our sponsors, Facebook and Google, for supporting the conference financially.

We hope you enjoy the conference!

Aline Villavicencio and Mohit Bansal
CoNLL 2019 conference co-chairs

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16:30–18:00 *SimVecs: Similarity-Based Vectors for Utterance Representation in Conversational AI Systems*
Ashraf Mahgoub, Youssef Shahin, Riham Mansour and Saurabh Bagchi

16:30–18:00 *Incorporating Interlocutor-Aware Context into Response Generation on Multi-Party Chatbots*
Cao Liu, Kang Liu, Shizhu He, Zaiqing Nie and Jun Zhao

16:30–18:00 *Memory Graph Networks for Explainable Memory-grounded Question Answering*
Seungwhan Moon, Pararth Shah, Anuj Kumar and Rajen Subba

Monday, November 4, 2019 (continued)

16:30–18:00 *TripleNet: Triple Attention Network for Multi-Turn Response Selection in Retrieval-Based Chatbots*
Wentao Ma, Yiming Cui, Nan Shao, Su He, Wei-Nan Zhang, Ting Liu, Shijin Wang and Guoping Hu

16:30–18:00 *Relation Module for Non-Answerable Predictions on Reading Comprehension*
Kevin Huang, Yun Tang, Jing Huang, Xiaodong He and Bowen Zhou

16:30–18:00 *Slot Tagging for Task Oriented Spoken Language Understanding in Human-to-Human Conversation Scenarios*
Kunho Kim, Rahul Jha, Kyle Williams, Alex Marin and Imed Zitouni

16:30–18:00 *Window-Based Neural Tagging for Shallow Discourse Argument Labeling*
René Knaebel, Manfred Stede and Sebastian Stober

16:30–18:00 *TILM: Neural Language Models with Evolving Topical Influence*
Shubhra Kanti Karmaker Santu, Kalyan Veeramachaneni and Chengxiang Zhai

16:30–18:00 *Pretraining-Based Natural Language Generation for Text Summarization*
Haoyu Zhang, Jingjing Cai, Jianjun Xu and Ji Wang

16:30–18:00 *Goal-Embedded Dual Hierarchical Model for Task-Oriented Dialogue Generation*
Yi-An Lai, Arshit Gupta and Yi Zhang

16:30–18:00 *Putting the Horse before the Cart: A Generator-Evaluator Framework for Question Generation from Text*
Vishwajeet Kumar, Ganesh Ramakrishnan and Yuan-Fang Li

16:30–18:00 *In Conclusion Not Repetition: Comprehensive Abstractive Summarization with Diversified Attention Based on Determinantal Point Processes*
Lei Li, Wei Liu, Marina Litvak, Natalia Vanetik and Zuying Huang

16:30–18:00 *Generating Formality-Tuned Summaries Using Input-Dependent Rewards*
Kushal Chawla, Balaji Vasan Srinivasan and Niyati Chhaya

16:30–18:00 *Do Massively Pretrained Language Models Make Better Storytellers?*
Abigail See, Aneesh Pappu, Rohun Saxena, Akhila Yerukola and Christopher D. Manning

16:30–18:00 *Self-Adaptive Scaling for Learnable Residual Structure*
Fenglin Liu, Meng Gao, Yuanxin Liu and Kai Lei

Monday, November 4, 2019 (continued)

16:30–18:00 *BIOfid Dataset: Publishing a German Gold Standard for Named Entity Recognition in Historical Biodiversity Literature*
Sajawel Ahmed, Manuel Stoeckel, Christine Driller, Adrian Pachzelt and Alexander Mehler

16:30–18:00 *Slang Detection and Identification*
Zhengqi Pei, Zhewei Sun and Yang Xu

16:30–18:00 *Alleviating Sequence Information Loss with Data Overlapping and Prime Batch Sizes*
Noémien Kocher, Christian Scuito, Lorenzo Tarantino, Alexandros Lazaridis, Andreas Fischer and Claudiu Musat

16:30–18:00 *Global Autoregressive Models for Data-Efficient Sequence Learning*
Tetiana Parshakova, Jean-Marc Andreoli and Marc Dymetman

16:30–18:00 *Learning Analogy-Preserving Sentence Embeddings for Answer Selection*
Aïssatou Diallo, Markus Zopf and Johannes Fürnkranz

16:30–18:00 *A Simple and Effective Method for Injecting Word-Level Information into Character-Aware Neural Language Models*
Yukun Feng, Hidetaka Kamigaito, Hiroya Takamura and Manabu Okumura

16:30–18:00 *On Model Stability as a Function of Random Seed*
Pranava Madhyastha and Rishabh Jain

16:30–18:00 *Studying Generalisability across Abusive Language Detection Datasets*
Steve Durairaj Swamy, Anupam Jamatia and Björn Gambäck

16:30–18:00 *Reduce & Attribute: Two-Step Authorship Attribution for Large-Scale Problems*
Michael Tschuggnall, Benjamin Murauer and Günther Specht

16:30–18:00 *Variational Semi-Supervised Aspect-Term Sentiment Analysis via Transformer*
Xingyi Cheng, Weidi Xu, Taifeng Wang, Wei Chu, Weipeng Huang, Kunlong Chen and Junfeng Hu

16:30–18:00 *Learning to Detect Opinion Snippet for Aspect-Based Sentiment Analysis*
Mengting Hu, Shiwan Zhao, Honglei Guo, Renhong Cheng and Zhong Su

16:30–18:00 *Multi-Level Sentiment Analysis of PolEmo 2.0: Extended Corpus of Multi-Domain Consumer Reviews*
Jan Kocoń, Piotr Miłkowski and Monika Zaśko-Zielińska

Monday, November 4, 2019 (continued)

16:30–18:00 *A Personalized Sentiment Model with Textual and Contextual Information*
Siwen Guo, Sviatlana Höhn and Christoph Schommer

16:30–18:00 *Cluster-Gated Convolutional Neural Network for Short Text Classification*
Haidong Zhang, Wancheng Ni, Meijing Zhao and Ziqi Lin

16:30–18:00 *Coherence-Based Modeling of Clinical Concepts Inferred from Heterogeneous Clinical Notes for ICU Patient Risk Stratification*
Tushaar Gangavarapu, Gokul S Krishnan and Sowmya Kamath

16:30–18:00 *Predicting the Role of Political Trolls in Social Media*
Atanas Atanasov, Gianmarco De Francisci Morales and Preslav Nakov

16:30–18:00 *Towards a Unified End-to-End Approach for Fully Unsupervised Cross-Lingual Sentiment Analysis*
Yanlin Feng and Xiaojun Wan

Invited Talk I

Ecological Language: A Multimodal Approach to the Study of Human Language Learning and Processing

Gabriella Vigliocco
Department of Experimental Psychology, University College London, UK

Abstract

The human brain has evolved the ability to support communication in complex and dynamic environments. In such environments, language is learned, and mostly used in face-to-face contexts in which processing and learning are based on multiple cues both linguistic and non-linguistic (such as gestures, eye gaze, mouth patterns and prosody). Yet, our understanding of how language is learnt and processed - as well as applications of this knowledge - comes mostly from reductionist approaches in which the multimodal signal is reduced to speech or text. I will introduce our current programme of research that investigates language in real-world settings in which the listener/learner has access to – and therefore can take advantage of – the multiple cues provided by the speaker. I will then describe studies that aim at characterising the distribution of the multimodal cues in the language used by caregivers when interacting with their children (mostly 2-4 years old) and provide data concerning how these cues are differentially distributed depending upon whether the child knows the objects being talked about (allowing us to more clearly isolate learning episodes), and whether objects being talked about are present. I will then move to a study using EEG addressing the question of how discourse but crucially also the non-linguistic cues modulate predictions about the next word in a sentence. Throughout the talk, I will highlight the ways in which this real world, more ecologically valid, approach to the study of language bear promise across disciplines.

Biography

Gabriella Vigliocco is Professor of the Psychology of Language in the Department of Experimental Psychology at University College London, Royal Society Wolfson Research Merit Fellow and Director of the Leverhulme Doctoral training Programme for the Ecological Study of the Brain. She received her PhD from University of Trieste in 1995, was a post-doc at University of Arizona, and after being at University of Wisconsin as Assistant Professor and the Max Planck Institute for Psycholinguistics as a visiting scientist, she moved to UCL. Vigliocco leads a multidisciplinary team composed of psychologists, linguists, computer scientists and cognitive neuroscientists sharing the vision that understanding language and cognition requires integration of multiple levels of analysis and methodological approaches. Her research focuses on the cognitive and neurobiological basis of human communication. More specifically she is interested in how we learn and process language in real-word settings, how our semantic knowledge interfaces with perception, action and emotion and how these systems are recruited during language learning. Through the years, her work has been supported by numerous prestigious awards, including Human Frontier Science Programme and currently European Research Council.

Invited Talk II

Multi-Step Reasoning for Answering Complex Questions

Christopher Manning
Department of Linguists and Computer Science, Stanford University, USA

Abstract

Current neural network systems have had enormous success on matching but still struggle in supporting multi-step inference. In this talk, I will examine two recent lines of work to address this gap, done with Drew Hudson and Peng Qi. In one line of work we have developed neural networks with explicit structure to support attention, composition, and reasoning, with an explicitly iterative inference architecture. Our Neural State Machine design also emphasizes the use of a more symbolic form of internal computation, represented as attention over symbols, which have distributed representations. Such designs encourage modularity and generalization from limited data. We show the model's effectiveness on visual question answering datasets. The second line of work makes progress in doing multi-step question answering over a large open-domain text collection. Most previous work on open-domain question answering employs a retrieve-and-read strategy, which fails when the question requires complex reasoning, because simply retrieving with the question seldom yields all necessary supporting facts. I present a model for explainable multi-hop reasoning in open-domain QA that iterates between finding supporting facts and reading the retrieved context. This GoldEn Retriever model is not only explainable but shows strong performance on the recent HotpotQA dataset for multi-step reasoning.

Biography

Christopher Manning is the inaugural Thomas M. Siebel Professor in Machine Learning in the Departments of Computer Science and Linguistics at Stanford University and Director of the Stanford Artificial Intelligence Laboratory (SAIL). His research goal is computers that can intelligently process, understand, and generate human language material. Manning is a leader in applying Deep Learning to Natural Language Processing, with well-known research on Tree Recursive Neural Networks, the GloVe model of word vectors, sentiment analysis, neural network dependency parsing, neural machine translation, question answering, and deep language understanding. He also focuses on computational linguistic approaches to parsing, robust textual inference and multilingual language processing, including being a principal developer of Stanford Dependencies and Universal Dependencies. He is an ACM Fellow, a AAAI Fellow, and an ACL Fellow, and a Past President of the ACL (2015). His research has won ACL, Coling, EMNLP, and CHI Best Paper Awards. He has a B.A. (Hons) from The Australian National University and a Ph.D. from Stanford in 1994, and he held faculty positions at Carnegie Mellon University and the University of Sydney before returning to Stanford. He is the founder of the Stanford NLP group (@stanfordnlp) and manages development of the Stanford CoreNLP software.