CoNLL 2021

The 25th Conference on Computational Natural Language Learning

Proceedings of the Conference

November 10 – 11, 2021
Online

Sponsors

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Introduction

Welcome to the 25th Conference on Computational Natural Language Learning (CoNLL). The conference is co-organized with EMNLP this year, but is taking place online, due to the impact of the COVID-19 pandemic.

Following the footsteps of CoNLL 2020, and in departure from previous editions of the conference, CoNLL 2021 focuses on theoretically, cognitively and scientifically motivated approaches to computational linguistics, rather than on work driven by particular engineering applications. This shift was indicated in the call for papers, the instructions given to the program committee, as well as in the publicity about the conference.

We received 226 submissions, of which 202 were sent out for review (the remaining submissions were desk-rejected or withdrawn by the authors). 52 submissions were ultimately accepted for publication (23.0% acceptance rate).[1] CoNLL 2021 features two invited talks, by Jennifer Culbertson (The University of Edinburgh, UK) and Gary Lupyan (University of Wisconsin–Madison, USA). We are grateful to all our reviewers (listed on the next page), and our dedicated area chairs: Ryan Cotterell, Adina Williams, Micha Elsner, Allyson Ettinger, Dipendra Misra, Samira Shaikh, Andrew Caines, Roi Reichart, Maja Popović, Rui Wang, Carlos Gómez-Rodríguez, Rob van der Groot, Dieuwke Hupkes, Xin Eric Wang, Michael Roth, Gabriel Stanovsky, Tanmoy Chakraborty, Kyle Gorman

We are also grateful to our publicity chair, Leshem Choshen, and our publication chair, Mareike Hartmann, for their substantial contribution to the conference, and to the SIGNLL information officers, Pieter Fivez and Jens Lemmens.

We would further like to acknowledge the support we received from Google for generously supporting the conference. Finally, we would also like to thank Julia Hockenmaier and Afra Alishahi and the members of the SIGNLL board for entrusting to us the task of organizing the conference, and Raquel Fernández and Tal Linzen, the organizers of CoNLL 2020, for their great advice and support.

Arianna Bisazza and Omri Abend
CoNLL 2021 conference co-chairs

[1] When computing the acceptance rate based only on papers sent out for review, the rate becomes 25.7%.

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Omri Abend, Hebrew University of Jerusalem, Israel

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We would like to recognize the following outstanding reviewers:

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Katharina Weitz, Lindsey Vanderlyn, Ngoc Thang Vu and Elisabeth André

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Lindsey Vanderlyn, Gianna Weber, Michael Neumann, Dirk Väth, Sarina Meyer and Ngoc Thang Vu

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Jennifer Culbertson

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Gary Lupyan

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Emma O'Neill, Joe Kenny, Anthony Ventresque and Julie Carson-Berndsen

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Keynote Talk I

Linking Learning to Language Typology

Jennifer Culbertson, The University of Edinburgh, UK

One of the most controversial hypotheses in linguistics is that individual-level biases in learning shape language typology at the population-level. While this hypothesis has been around a long time, it has often been supported by less than robust empirical evidence. In this talk, I present a number of studies aimed at providing new sources of evidence linking learning to key features of language. In the first part of the talk, I focus on a classic set of "language universals" which describe common word order patterns. One such pattern is word order harmony, the tendency for syntactic heads and dependents to align across phrases within a language. While harmony has long been claimed to have some special cognitive status, there is also compelling evidence that it may be driven by cognition-external processes of language change. I show that harmony is in fact favoured during learning, influencing how adults and children make inferences under noisy learning conditions, and how they extrapolate to new constructions. I then turn to a more complex pattern of word order which has been proposed to derive from constraints on syntactic representations. I report experimental and quantitative corpus-based evidence to suggest an alternative explanation of this pattern, but one nevertheless driven by learning. In the second part of the talk, I discuss the role of learning in shaping morphosynactic patterns like grammatical gender. I argue that the different biases of children and adults during learning work together to constrain how such patterns emerge and change over time. Finally, I discuss the implications of this work for linguistic theories and models of language learning.

Keynote Talk II

What are we Learning from Language?

Gary Lupyan, University of Wisconsin–Madison, USA

Where does semantic knowledge come from? Previous work on semantic knowledge within cognitive science has focused on studying knowledge acquired from direct experience with the world and through inference. But recent advances in natural language processing combined with greater availability of large text corpora have revealed that languages encode far more semantic information than previously suspected. In some cases, knowledge that was thought to require direct perceptual experience or inferential reasoning can be derived entirely from language itself. I will present some recent investigations of this idea showing, for example, that embedded within the distributional structure of language is substantial information about visual appearance that people can rely on to learn about what things look like. I will also discuss how distributional semantics are informing our understanding of cross-linguistic differences in word meanings, and the relationship between language and thought. I will end by speculating that the robust availability of linguistic information may conceal radical diversity in human cognition.