Message from the Organizers

These are the conference proceedings of IWCS 2021, the 14th edition of the International Conference on Computational Semantics. This conference is supported by the NWO-VICI grant “Lost in Translation—Found in Meaning” (288-89-003), known from its research and creation of the Parallel Meaning Bank.

The original plan was to have this conference take place in the beautiful city of Groningen, situated in the north of the Netherlands. However, due to the outbreak of the pandemic last year it became soon clear that this would not be a feasible option. So we decided to go ahead anyway and organize it as a fully online event. And indeed, it is the first time that IWCS is organized as an online event, spread over two days from 17–18 June 2021. Four satellite workshops are organised in the days before the conference:

- ISA-17: The Seventeenth Joint ACL - ISO Workshop on Interoperable Semantic Annotation;
- MMSR I: Beyond Language: Multimodal Semantic Representations;
- NALOMA’21: Natural Logic meets Machine Learning 2021;

Going back to the main conference, the call for papers triggered 50 submissions (39 long and 11 short). Each paper was reviewed by three reviewers. There were three desk rejects. Eventually, 24 papers were accepted for the conference, of which one was withdrawn. This results in 19 long and 4 short papers with a final acceptance rate of 46% (49% for long and 36% for short papers). The final programme shows a lot of diversity with topics ranging from semantic parsing, question answering, knowledge extraction, and frame semantics. Two keynotes complement the programme, given by Rachel Rudinger (University of Maryland) and Mirella Lapata (University of Edinburgh).

We wish you a pleasant conference!

Groningen, 1 June 2021

Lasha Abzianidze
Johan Bos
Rik van Noord
Sina Zarrieß
Organisation

Program Chairs:
Johan Bos University of Groningen
Rik van Noord University of Groningen
Sina Zarrieß University of Bielefeld

Local Chairs:
Johan Bos University of Groningen
Rik van Noord University of Groningen

Publication Chair:
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Keynote Speakers

Mirella Lapata, University of Edinburgh

Title: The Democratization of Semantic Parsing via Zero-Shot Cross-lingual Learning

Abstract: Semantic parsing is the task of mapping natural language utterances to machine-interpretable expressions such as SQL or a logical meaning representation. It has emerged as a key technology for developing natural language interfaces, especially in the context of question answering where a semantically complex question is mapped to an executable query to retrieve an answer, or denotation.

Datasets for semantic parsing scarcely consider languages other than English and professional translation can be prohibitively expensive. Recent work has successfully applied machine translation to localize parsers to new languages. However, high-quality machine translation is less viable for lower resource languages, and can introduce performance limiting artifacts, struggling to accurately model native speakers.

In this talk view cross-lingual semantic parsing as a zero-shot learning problem. We propose a multi-task encoder-decoder model to transfer parsing knowledge to additional languages using only English-Logical form paired data and unlabeled, mono-lingual utterances in each target language. Our encoder learns language-agnostic representations and is jointly optimized for generating logical forms or utterance reconstruction and against language discriminability. We frame zero-shot parsing as a latent-space alignment problem and find that pre-trained models can be improved to generate logical forms with minimal cross-lingual transfer penalty. Our parser performs above back-translation baselines and, in some cases, approaches the supervised upper bound.

Bio: Mirella Lapata is professor of natural language processing in the School of Informatics at the University of Edinburgh. Her research focuses on getting computers to understand, reason with, and generate natural language. She is the first recipient (2009) of the British Computer Society and Information Retrieval Specialist Group (BCS/IRSG) Karen Sparck Jones award, a Fellow of the ACL and the Royal Society of Edinburgh. She has also received best paper awards in leading NLP conferences and has served on the editorial boards of the Journal of Artificial Intelligence Research, the Transactions of the ACL, and Computational Linguistics. She was president of SIGDAT (the group that organized EMNLP) in 2018.
Title: When Pigs Fly and Birds Don’t: Exploring Defeasible Inference in Natural Language

Abstract: Commonsense reasoning tasks are often posed in terms of soft inferences: given a textual description of a scenario, determine which inferences are likely or plausibly true. For example, if a person drops a glass, it is likely to shatter when it hits the ground. A hallmark of such inferences is that they are defeasible, meaning they may be undermined or retracted with the introduction of new information. (E.g., we no longer infer that the dropped glass is likely to have shattered upon learning that it landed on a soft pile of laundry.) While defeasible reasoning is a long-standing topic of research in Artificial Intelligence (McCarthy, 1980; McDermott and Doyle, 1980; Reiter, 1980), it is less well studied in the context of contemporary text-based inference tasks, like Recognizing Textual Entailment (Dagan et al., 2005), or Natural Language Inference (MacCartney, 2009; Bowman et al., 2015). In this talk, I will present a new line of work that merges traditional defeasible reasoning with contemporary data-driven textual inference tasks. I argue that defeasible inference is a broadly applicable framework for different types of language inference tasks, and present examples for physical, temporal, and social reasoning.

Bio: Rachel Rudinger is an Assistant Professor of Computer Science at the University of Maryland, College Park. Previously, she obtained her PhD at John Hopkins University and spent a year as a Young Investigator at AI2 in Seattle. Her research focuses on problems in natural language understanding, including knowledge acquisition from text, commonsense inference, computationally-tractable semantic representations, and semantic parsing. She is also a contributing member of the Decompositional Semantics Initiative.
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