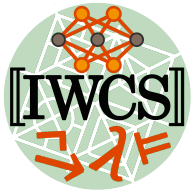
IWCS 2021



The 14th International Conference on Computational Semantics

Proceedings of the Conference

June 17 - 18, 2021
Groningen, The Netherlands (Online)

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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;
- SemSpace 2021: Semantic Spaces at the Intersection of NLP, Physics, and Cognitive Science.

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 Eventually, 24 papers were accepted for the conference, of which one was withdrawn.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

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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.

Rachel Rudinger, University of Maryland

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.

Table of Contents

Switching Contexts: Transportability Measures for NLP
Guy Marshall, Mokanarangan Thayaparan, Philip Osborne and André Freitas 1

Applied Temporal Analysis: A Complete Run of the FraCaS Test Suite
Jean-Philippe Bernardy and Stergios Chatzikyriakidis 11

CO-NNECT: A Framework for Revealing Commonsense Knowledge Paths as Explicitations of Implicit Knowledge in Texts
Maria Becker, Katharina Korfhage, Debjit Paul and Anette Frank 21

Computing All Quantifier Scopes with CCG
Miloš Stanojević and Mark Steedman 33

Encoding Explanatory Knowledge for Zero-shot Science Question Answering
Zili Zhou, Marco Valentino, Donal Landers and André Freitas 38

Predicate Representations and Polysemy in VerbNet Semantic Parsing
James Gung and Martha Palmer 51

Critical Thinking for Language Models
Gregor Betz, Christian Voigt and Kyle Richardson 63

Do Natural Language Explanations Represent Valid Logical Arguments? Verifying Entailment in Explainable NLI Gold Standards
Marco Valentino, Ian Pratt-Hartmann and André Freitas 76

Looking for a Role for Word Embeddings in Eye-Tracking Features Prediction: Does Semantic Similarity Help?
Lavinia Salicchi, Alessandro Lenci and Emmanuele Chersoni 87

Automatic Assignment of Semantic Frames in Disaster Response Team Communication Dialogues
Natalia Skachkova and Ivana Kruijff-Korbayova 93

Implicit representations of event properties within contextual language models: Searching for "causativity neurons"
Esther Seyffarth, Younes Samih, Laura Kallmeyer and Hassan Sajjad 110

Monotonicity Marking from Universal Dependency Trees
Zeming Chen and Qiyue Gao 121

Is that really a question? Going beyond factoid questions in NLP
Aikaterini-Lida Kalouli, Rebecca Kehlbeck, Rita Sevastjanova, Oliver Deussen, Daniel Keim and Miriam Butt 132

New Domain, Major Effort? How Much Data is Necessary to Adapt a Temporal Tagger to the Voice Assistant Domain
Touhidul Alam, Alessandra Zarcone and Sebastian Padó 144

Breeding Fillmore's Chickens and Hatching the Eggs: Recombining Frames and Roles in Frame-Semantic Parsing
Gosse Minnema and Malvina Nissim 155

Large-scale text pre-training helps with dialogue act recognition, but not without fine-tuning
Bill Noble and Vladislav Maraev 166

Builder, we have done it: Evaluating & Extending Dialogue-AMR NLU Pipeline for Two Collaborative Domains
Claire Bonial, Mitchell Abrams, David Traum and Clare Voss 173

A Transition-based Parser for Unscoped Episodic Logical Forms
Gene Kim, Viet Duong, Xin Lu and Lenhart Schubert 184

"Politeness, you simpleton!" retorted [MASK]: Masked prediction of literary characters
Eric Holgate and Katrin Erk 202

Tuning Deep Active Learning for Semantic Role Labeling
Skatje Myers and Martha Palmer 212

SemLink 2.0: Chasing Lexical Resources
Kevin Stowe, Jenette Preciado, Kathryn Conger, Susan Windisch Brown, Ghazaleh Kazeminejad, James Gung and Martha Palmer 222

Variation in framing as a function of temporal reporting distance
Levi Remijnse, Marten Postma and Piek Vossen 228

Automatic Classification of Attributes in German Adjective-Noun Phrases
Neele Falk, Yana Strakatova, Eva Huber and Erhard Hinrichs 239