LREC-COLING 2024

The 5th International Workshop on Designing Meaning Representation (DMR 2024) @LREC-COLING-2024

Workshop Proceedings

Editors
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Proceedings of the Fifth International Workshop
on Designing Meaning Representations (DMR 2024) @LREC-COLING-2024

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Preface

In her 2023 ACL Lifetime Achievement Award acceptance speech, Dr. Martha Palmer (University of Colorado, Boulder) sums up her 50 years of research in AI and NLP in six words: “Finding meaning, quite literally, in words.” Now in its fifth iteration, the International Designing Meaning Representations Workshop brings together researchers from around the world who endeavor to do the same.

While deep learning methods have led to many breakthroughs in practical natural language applications, most notably in Machine Translation, Machine Reading, Question Answering, Recognizing Textual Entailment, and so on, there is still a sense among many NLP researchers that we have a long way to go before we can develop systems that can actually "understand" human language and explain the decisions they make. Indeed, “understanding” natural language entails many different human-like capabilities, and they include but are not limited to the ability to track entities in a text, understand the relations between these entities, track events and their participants, understand how events unfold in time, and distinguish events that have actually happened from events that are planned or intended, are uncertain, or did not happen at all. “Understanding” also entails human-like ability to perform qualitative and quantitative reasoning, possibly with knowledge acquired about the real world. We believe a critical step in achieving natural language understanding is to design meaning representations for text that have the necessary meaning “ingredients” that help us achieve these capabilities.

These proceedings showcase the work of researchers who are producers and consumers of meaning representations, who come together in this forum every year to gain a deeper understanding of the key elements of meaning that are the most valuable to the NLP community. The workshop provides an opportunity for meaning representation researchers to examine critically existing frameworks with the goal of using their findings to inform the design of next-generation meaning representations. Together, we explore opportunities and identify challenges in the design and use of meaning representations in multilingual settings, and seek to understand the relationship between distributed meaning representations (trained on large data sets using network models) versus symbolic meaning representations (carefully designed and annotated by CL researchers).

This year’s Designing Meaning Representation workshop honors Dr. Palmer’s 50-year research journey with a special theme on resources, approaches, and applications that draw upon her manifold contributions to the field: Treebanks, PropBanks, VerbNets, OntoNotes, Abstract Meaning Representation (AMR), and Uniform Meaning Representation (UMR). These resources share attention to semantic detail combined with scalability and, therefore, an ability to generalize to and support a variety of different NLP applications and tasks. Indeed, the applicability of Dr. Palmer’s research extends beyond the textual to the multimodal, where she has broadly contributed to cross-modal event understanding. Thus, DMR 2024 highlights the depth and the breadth of Dr. Palmer’s contributions and their influence over the field of natural language processing by including original works that have leveraged, expanded, or been inspired by the “Marthaverse of Meaning.” With gratitude, we recognize Dr. Palmer’s long tenure of dedication to outstanding mentorship that has been so powerful for the many students who have gone on to shape the NLP research community and the field at large.

These proceedings include papers presented at the 5th Designing Meaning Representation workshop on May 21, 2024, held in conjunction with the 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING 2024) in Torino, Italy. DMR 2024 received 25 submissions, out of which 17 papers have been accepted to be presented at the workshop as talks (six papers) and posters or virtual short presentations

(11 papers). The papers address topics ranging from meaning representation methodologies to issues in meaning representation parsing, to the adaptation of meaning representations to specific applications and domains, to cross-linguistic issues in meaning representation. In addition to the oral paper presentations and poster session, DMR 2024 also featured invited talks by Fei Xia (University of Washington) and Owen Rambow (Stony Brook University), entitled "If Data Could Talk" and "Propositional Content and Commitment to Truth," respectively.

Message from the Workshop Chairs

We thank our organizing committee for its continuing organization of the DMR workshops, and the LREC-COLING 2024 workshop chairs for their support. We are grateful to all of the authors for submitting their papers to the workshop and our program committee members for their dedication and their thoughtful reviews. We thank our invited speakers for making the workshop a uniquely valuable discussion of linguistic annotation research. Finally, we thank Martha Palmer for her continued innovation, inspiration, motivation, and encouragement in our research community and in our own lives.

Claire Bonial, Julia Bonn, and Jena D. Hwang

Message from Special Honoree Martha Palmer

First, I want to thank all the workshop chairs, Claire Bonial, Julia Bonn, Jena Hwang, and the organizing committee, Lucia Donatelli, Jan Hajič, Alexis Palmer, Nathan Schneider, Nianwen Xue, for this very delightful tribute. They made me cry and I am eternally grateful to them, for their kindness to me and for their friendship.

I've led a charmed life. I've gotten to work on these incredibly interesting and challenging problems, with all of these amazing people, like Jim Martin at CU. What more could anyone ask for? Every work environment, there have been intelligent, dedicated, curious folks - students, postdocs, staff and faculty - and together we were able to try to solve the insoluble problems, to dream the impossible dreams. It doesn't get better than that.

Over the years I've realized there is something special about people who are fascinated by semantics. They are in awe of the mystery of language, and how it is that we manage to communicate using it.

Knowledge is fostered by curiosity; wisdom is fostered by awe (Heschel, A, 1965).[1]

Folks who work on semantics have to have a certain humility, an ability to recognize that they are never completely sure if they have exactly the right answer. Semantics often defies being cleanly defined. A large part of this has to do with the ability to be comfortable with uncertainty. Things that are clearly right or wrong, black or white, are so much easier to deal with. Yet so much of the world and of life, like semantics, doesn't fit those categories neatly. Perhaps, if we

[1] Complete Heschel quote:

> *Knowledge is fostered by curiosity; wisdom is fostered by awe. Awe precedes faith; it is the root of faith. We must be guided by awe to be worthy of faith. Forfeit your sense of awe, let your conceit diminish your ability to revere, and the universe becomes a market place for you. The loss of awe is the avoidance of insight. A return to reverence is the first prerequisite for a revival of wisdom, for the discovery of the world as an allusion to God.*

Abraham J. Heschel, Who Is Man? (Stanford, CA: Stanford University Press, 1965), 88–89, isbn=9780804702669

study semantics long enough with a sufficient quota of awe, we will all gain a tiny modicum of wisdom. Maybe it is no accident that almost every collaborative project, every student supervision, has turned into a life-long friendship. It is a privilege to be able to associate with such exceptional people.

I will end with a quote from a Center for Action and Contemplation meditation from February 24, 2024, by Kate Bowler.

> *"I had a very tender podcast conversation with theologian and ethicist Stanley Hauerwas. We have worked together for almost two decades now, and I rely on him to be incredibly certain about what makes a life good and virtuous. . . . After describing how many twists and turns that life had taken, he had come to a conclusion: "The ability to live well is the ability to live without so many certainties."*

We are all living life well, aren't we?

Martha Stone Palmer

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Julia Bonn, University of Colorado Boulder
Jena D. Hwang, Allen Institute for AI

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Heike Zinsmeister, Universität Hamburg

Publicity Chair

Kristine Stenzel, University of Colorado Boulder

Invited Speakers

Owen Rambow, Stony Brook University
Fei Xia, University of Washington

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Workshop Program

May 21, 2024

9:00–10:30 **Morning Session 1: Intro, Keynote 1, and in-person paper talk**

9:00–9:10 ***Intro***

9:10–10:10 *Keynote 1: If Data Could Talk*
Fei Xia

10:10–10:30 *PropBank-Powered Data Creation: Utilizing Sense-Role Labelling to Generate Disaster Scenario Data*
Mollie Frances Shichman, Claire Bonial, Taylor A. Hudson, Austin Blodgett, Francis Ferraro and Rachel Rudinger

10:30–11:00 **Coffee Break**

11:00–13:00 **Morning Session 2: in-person paper talk, lightning talks, and special honoree activities**

11:00–11:20 *Aspect Variability and the Annotation of Aspect in the IMAGACT Ontology of Action*
Massimo Moneglia and Rossella Varvara

11:20–11:40 *NoVRoI: A semantic role lexicon of Norwegian verbs*
Henrik Torgersen, Erlend Ø. Ravnanger, Lars Hellan and Dag Haug

May 21, 2024 (continued)

11:40–12:08 Virtual Lightning Talks

11:40–11:48 *Expanding Russian PropBank: Challenges and Insights for Developing New SRL Resources*
Skatje Myers, Roman Khamov, Adam Pollins, Rebekah Tozier, Olga Babko-Malaya and Martha Palmer

11:50–11:58 *Unveiling Semantic Information in Sentence Embeddings*
Leixin Zhang, David Burian, Vojtěch John and Ondřej Bojar

12:00–12:08 *A Quantum Theory of Terms and New Challenges to Meaning Representation of Quanterms*
Diego Burgos

12:10–13:00 Special Session: Honoring Martha Palmer

12:10–12:25 *A special message from our Guest of Honor*
Martha Palmer

12:25–13:00 *Marthaverse activity*

13:00–14:00 Lunch Break

14:00–16:00 Afternoon Session 1: poster session and keynote 2

May 21, 2024 (continued)

14:00–15:00 Poster Session

VOLARE - Visual Ontological LAnguage REpresentation
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YARN is All You Knit: Encoding Multiple Semantic Phenomena with Layers
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15:00–16:00 *Keynote 2: Propositional Content and Commitment to Truth*
Owen Rambow

May 21, 2024 (continued)

16:00–16:30 Coffee Break

16:30–18:00 Afternoon Session 2: in-person paper talks

16:30–16:50 *Accelerating UMR Adoption: Neuro-Symbolic Conversion from AMR-to-UMR with Low Supervision*
Claire Benet Post, Marie C. McGregor, Maria Leonor Pacheco and Alexis Palmer

16:50–17:10 *The Relative Clauses AMR Parsers Hate Most*
Xiulin Yang and Nathan Schneider

17:10–17:30 *Gaining More Insight into Neural Semantic Parsing with Challenging Benchmarks*
Xiao Zhang, Chunliu Wang, Rik van Noord and Johan Bos

17:30–18:00 *Outro*
Claire Bonial, Julia Bonn, Jena D. Hwang