The 13th edition of the Workshop on Cognitive Modeling and Computational Linguistics

Proceedings of the Workshop

August 15, 2024
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Introduction

Welcome to the 13th edition of the Workshop on Cognitive Modeling and Computational Linguistics (CMCL 2024)!

CMCL has traditionally been the workshop of reference for research at the intersection between Computational Linguistics and Cognitive Science. After a blank in 2023, we are thrilled to be back, hosting this event once again after two years.

This year, CMCL has experienced multiple firsts, making it a landmark edition in its history. First, the organization team has transitioned to a younger generation and adopted modern logistics, such as using OpenReview and allowing commitments via ACL Rolling Review, for the first time. Second, this is the first CMCL held in the age of large language models (LLMs), prompting us to focus on fundamental scientific questions (e.g., their alignment with human cognition/perception) regarding artificial intelligence and cognitive science. Third, this is also the first CMCL held in Asia, marking a new geographical milestone for the workshop. Lastly, we received a record number of 55 submissions (37 regular submissions and 18 cross-submissions, including Findings papers), nearly doubling the submission number in the previous edition, providing a testament to the growing interest in this scientific, interdisciplinary field and the need for the dedicated workshop even in the age of somewhat engineeringly-oriented LLMs.

Out of 37 regular submissions, 34 papers are via direct submission (including 1 paper withdrawn before reviewing), and 3 papers are through the ARR commitment. We accepted 23 papers, resulting in an acceptance rate of 23/36=63.9%, slightly higher than in previous years. Additionally, 12 non-archival, cross-submissions were accepted and will be presented during the poster sessions. We are excited to have a diverse set of topics, including but not limited to, sentence processing, language acquisition, and new investigations powered by modern (multimodal) LLMs, covered in this year’s program.

We extend our deepest gratitude to the Program Committee members; their dedication and expertise are the backbone of CMCL’s success. We also express our sincere thanks to our invited speakers, Dr. Frank Keller, Dr. Aida Nematzadeh, and Dr. Sandro Pezzelle, for their valuable contributions to this year’s program.

Lastly, we are immensely grateful to our sponsor, the Japan Science and Technology Agency. Their generous support allows us to subsidize the participation of our invited speakers.

The CMCL 2024 Organizing Committee
Organizers:

Tatsuki Kuribayashi, Mohammed bin Zayed University of Artificial Intelligence
Giulia Rambelli, University of Bologna
Ece Takmaz, University of Amsterdam
Philipp Wicke, Ludwig Maximilian University
Yohei Oseki, University of Tokyo

Invited speakers:

Frank Keller, University of Edinburgh
Aida Nematzadeh, Google DeepMind
Sandro Pezzelle, University of Amsterdam

Program committee:

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James A. Michaelov, University of California, San Diego
Sathvik Nair, University of Maryland
Ludovica Pannitto, University of Bologna
Tiago Pimentel, ETH Zurich
Laurent Prevot, Université d’Aix-Marseille
Rachel Ryskin, University of California at Merced
William Schuler, Ohio State University, Columbus
Dylan Scott, National Taiwan Normal University
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Program

Thursday, August 15, 2024

08:45 - 09:00  Opening Remarks

09:00 - 09:40  Keynote talk by Dr. Sandro Pezzelle

09:40 - 10:40  Session 1: Oral Presentations

Hierarchical syntactic structure in human-like language models
Michael Wolfman, Donald Dunagan, Jonathan Brennan and John T. Hale

Do large language models resemble humans in language use?
Zhenguang Cai, Xufeng Duan, David Haslett, Shuqi Wang and Martin Pickering

Evaluating Vision-Language Models on Bistable Images
Artemis Panagopoulou, Coby Melkin and Chris Callison-Burch

10:40 - 11:00  Break

11:00 - 12:20  Session 2: Poster Presentations

BAMBINO-LM: (Bilingual-)Human-Inspired Continual Pre-training of BabyLM
Zhewen Shen, Aditya Joshi and Ruey-Cheng Chen

The Curious Case of Representational Alignment: Unravelling Visio-Linguistic Tasks in Emergent Communication
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Daily auditory environments in French-speaking infants: A longitudinal dataset
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What does Kiki look like? Cross-modal associations between speech sounds and visual shapes in vision-and-language models
Tessa Verhoef, Kiana Shahrasbi and Tom Kouwenhoven

Modeling Overregularization in Children with Small Language Models
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Language models’ probability distributions are calibrated to cognitive profiles: An investigation of the predictive power of surprisal and entropy
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What Makes Language Models Good-enough?
Daiki Asami and Saku Sugawara

Tree-Planted Transformers: Unidirectional Transformer Language Models with Implicit Syntactic Supervision
Ryo Yoshida, Taiga Someya and Yohei Oseki

How Much Does Non-verbal Communication Conform to Entropy Rate Constancy?: A Case Study on Listener Gaze in Interaction
Yu Wang, Yang Xu, Gabriel Skantze and Hendrik Buschmeier

VerbCLIP: Improving Verb Understanding in Vision-Language Models with Compositional Structures
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So many design choices: Improving and interpreting neural agent communication in signaling games
Timothée Bernard and Timothee Mickus

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14:00 - 15:00  Session 3: Oral Presentations

Large language models fail to derive atypicality inferences in a human-like manner
Charlotte Kurch, Margarita Ryzhova and Vera Demberg
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*Diachronic change in verb usage statistics predicts differences in sentence processing across the lifespan*
Ellis Cain and Rachel Ryskin

*How can large language models become more human?*
Daphne Wang, Mehrnoosh Sadrzadeh, Miloš Stanojević, Wing-Yee Chow and Richard Breheny

15:00 - 15:40  *Invited talk by Dr. Frank Keller*

15:40 - 16:00  *Break*

16:00 - 17:20  *Session 4: Poster Presentations*

*Locally Biased Transformers Better Align with Human Reading Times*
Andrea Gregor De Varda and Marco Marelli

*Evaluating Lexical Aspect with Large Language Models*
Bolei Ma

*Analysing and Validating Language Complexity Metrics Across South American Indigenous Languages*
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*Evaluating Grammatical Well-Formedness in Large Language Models: A Comparative Study with Human Judgments*
Zhuang Qiu, Xufeng Duan and Zhenguang Cai

*Evaluating Semantic Relations in Predicting Textual Labels for Images of Abstract and Concrete Concepts*
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**Improving Language Models for Emotion Analysis: Insights from Cognitive Science**
Constant Bonard and Gustave Cortal

**Structural Similarities Between Language Models and Neural Response Measurements**
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**Exploring Spatial Schema Intuitions in Large Language and Vision Models**
Philipp Wicke and Lennart Wachowiak

**Can You Learn Semantics Through Next-Word Prediction? The Case of Entailment**
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**The Emergence of High-Level Semantics in a Signaling Game**
Timothée Bernard, Timothee Mickus and Hiroya Takamura

**PUB: A Pragmatics Understanding Benchmark for Assessing LLMs’ Pragmatics Capabilities**
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17:20 - 18:00  **Invited talk by Dr. Aida Nematzadeh**

18:00 - 18:10  **Closing Remarks**