CMCL 2025

The 14th edition of the Workshop on Cognitive Modeling and Computational Linguistics

Proceedings of the Workshop

May 3, 2025

This workshop has been supported by National Institute for Japanese Language and Linguistics (NINJAL), Japan.

©2025 Association for Computational Linguistics

Order copies of this and other ACL proceedings from:

Association for Computational Linguistics (ACL)
317 Sidney Baker St. S
Suite 400 - 134
Kerrville, TX 78028
USA
Tel: +1-855-225-1962
acl@aclweb.org

ISBN 979-8-89176-227-5

Introduction

Welcome to the 14th edition of the Workshop on Cognitive Modeling and Computational Linguistics (CMCL 2025)!

CMCL continues to be one of the leading workshops at the intersection of Cognitive Modeling, Computational (Psycho-)Linguistics, and Natural Language Processing. Building on the success of the CMCL 2024 edition, we are delighted to gather once again this year to explore the latest advancements in this vibrant interdisciplinary field.

This year, we received 47 submissions in total, including 35 regular archival submissions and 12 non-archival submissions. We accepted 22 archival papers, resulting in an acceptance rate of 22/35=62.9%, which remains consistent with the previous year (63.9%). We also accepted 9 non-archival papers, out of 12 non-archival submissions. The program covers a wide array of topics, encompassing main topics such as real-time sentence processing, alongside advanced themes like language disorders, neuroscientific comparison of humans and language models, and the integration of speech data/models. This diversity reflects the growing engagement in our field and the increasing importance of understanding human/language through computational methods.

We appreciate the Program Committee members for their timely and constructive reviews, which were instrumental in shaping the program. We also extend our gratitude to our invited speakers, Dr. John Hale and Dr. Tessa Verhoef, for enriching this year's program with their expertise and inspiring talks. Given that the number of proposals for ACL workshops has increased in recent years, it is also important to express our gratitude to the ACL workshop chairs for selecting CMCL as one of workshops in NLP top-conferences.

Lastly, we are immensely grateful to our sponsor, National Institute for Japanese Language and Linguistics (NINJAL). Their generous support enables us to host the participation of our invited speakers in this year's CMCL.

Thank you for joining CMCL 2025. We look forward to an engaging and stimulating exchange of ideas!

The CMCL 2025 Organizing Committee

Organizing Committee

Organizers

Tatsuki Kuribayashi, Mohammed bin Zayed University of Artificial Intelligence
Giulia Rambelli, University of Bologna
Ece Takmaz, Utrecht University
Philipp Wicke, Ludwig Maximilian University
Jixing Li, City University of Hong Kong
Byung-Doh Oh, New York University

Program Committee

Invited speakers

John Hale, Johns Hopkins University, University of Georgia, and DeepMind
Tessa Verhoef, Leiden Institute of Advanced Computer Science

Program committee

Giorgia Albertin, University of Bologna
Anna Bavaresco, University of Amsterdam
Luca Capone, University of Pisa
Ludovica Cerini, University of Pisa
Luca Dini, University of Pisa
Filip Ilievski, Vrije Universiteit Amsterdam
Alessio Miaschi, Institute for Computational Linguistics A. Zampolli"(CNR-ILC), Pisa
Martina Miliani, University of Pisa
Andrea Pedrotti, Institute of Information Science and Technologies of the National Council of Research (ISTI-CNR)
Alice Suozzi, University of Venice
Giorgia Albertin, University of Bologna
Raquel G. Alhama, University of Amsterdam, University of Amsterdam
Afra Alishahi, Tilburg University
Masayuki Asahara, National Institute for Japanese Language and Linguistics, Japan
Anna Bavaresco, University of Amsterdam
Ted Briscoe, Mohamed bin Zayed University of Artificial Intelligence
Emmanuele Chersoni, The Hong Kong Polytechnic University
Marianne De Heer Kloots, University of Amsterdam
Aniello De Santo, University of Utah
Andrea Gregor De Varda, University of Milan - Bicocca
Vera Demberg, Universität des Saarlandes
Luca Dini, University of Pisa
Jakub Dotlacil, Utrecht University
Micha Elsner, Ohio State University
Abdellah Fourtassi, Aix Marseille Univ
Diego Frassinelli, Ludwig-Maximilians-Universität München
Richard Futrell, University of California, Irvine
John T. Hale, Johns Hopkins University, University of Georgia and DeepMind
Tim Hunter, University of California, Los Angeles
Filip Ilievski, Vrije Universiteit Amsterdam
Shinnosuke Isono, National Institute for Japanese Language and Linguistics and University of Tokyo
Anna A Ivanova, Georgia Institute of Technology
Cassandra L Jacobs, State University of New York, Buffalo
Jaap Jumelet, University of Groningen
Kristina Kobrock, Universität Osnabrück
Tom Kouwenhoven, Leiden University
Agnese Lombardi, University of Pisa
Alessio Miaschi, Institute for Computational Linguistics A. Zampolli"(CNR-ILC), Pisa
James A. Michaelov, Massachusetts Institute of Technology

Sathvik Nair, University of Maryland
Yohei Oseki, University of Tokyo
Ludovica Pannitto, University of Bologna
Sandro Pezzelle, University of Amsterdam
Roi Reichart, Technion, Israel Institute of Technology
Rachel Ryskin, University of California at Merced
Lavinia Salicchi, The Hong Kong Polytechnic University
William Schuler, Ohio State University, Columbus
Cory Shain, Massachusetts Institute of Technology
Taiga Someya, The University of Tokyo
Sean Trott, University of California, San Diego
Ryo Ueda, The University of Tokyo
Shaonan Wang, Chinese Academy of Sciences
Ryo Yoshida, The University of Tokyo

Table of Contents

Linguistic Blind Spots of Large Language Models
Jiali Cheng and Hadi Amiri 1

ParaBLoCC: Parallel Basic Locative Constructions Corpus
Peter Viechnicki and Anthony Kostacos 18

Capturing Online SRC/ORC Effort with Memory Measures from a Minimalist Parser
Aniello De Santo 24

From Punchlines to Predictions: A Metric to Assess LLM Performance in Identifying Humor in Stand-Up Comedy
Adrianna Romanowski, Pedro H. V. Valois and Kazuhiro Fukui 36

Profiling neural grammar induction on morphemically tokenised child-directed speech
Mila Marcheva, Theresa Biberauer and Weiwei Sun 47

Exploring the Integration of Eye Movement Data on Word Embeddings
Fermín Travi, Gabriel Aimé Leclercq, Diego Fernandez Slezak, Bruno Bianchi and Juan E Kamienkowski 55

Unzipping the Causality of Zipf's Law and Other Lexical Trade-offs
Amanda Doucette, Timothy J. O'Donnell and Morgan Sonderegger 66

Quantifying Semantic Functional Specialization in the Brain Using Encoding Models of Natural Language
Jiaqi Chen, Richard Antonello, Kaavya Chaparala, Coen Arrow and Nima Mesgarani 77

"Is There Anything Else?": Examining Administrator Influence on Linguistic Features from the Cookie Theft Picture Description Cognitive Test
Changye Li, Zhecheng Sheng, Trevor Cohen and Serguei V. S. Pakhomov 91

Cross-Framework Generalizable Discourse Relation Classification Through Cognitive Dimensions
Yingxue Fu 104

Distinct social-linguistic processing between humans and large audio-language models: Evidence from model-brain alignment
Hanlin Wu, Xufeng Duan and Zhenguang Cai 135

SPACER: A Parallel Dataset of Speech Production And Comprehension of Error Repairs
Shiva Upadhye, Jiaxuan Li and Richard Futrell 144

Are Larger Language Models Better at Disambiguation?
Ziyuan Cao and William Schuler 155

Towards a Bayesian hierarchical model of lexical processing
Cassandra L Jacobs and Loïc Grobol 165

Modeling Chinese L2 Writing Development: The LLM-Surprisal Perspective
Jingying Hu and Yan Cong 172

Beyond Binary Animacy: A Multi-Method Investigation of LMs' Sensitivity in English Object Relative Clauses
Yue Li, Yan Cong and Elaine J. Francis 184

An Empirical Study of Language Syllabification using Syllabary and Lexical Networks
Rusali Saha and Yannick Marchand 197

Creolization versus code-switching: An agent-based cognitive model for bilingual strategies in language contact
Charles John Torres, Weijie Xu, Yanting Li and Richard Futrell 207

When Men Bite Dogs: Testing Good-Enough Parsing in Turkish with Humans and Large Language Models
Onur Keleş and Nazik Dinctopal Deniz 219

Transformers Can Model Human Hyperprediction in Buzzer Quiz
Yoichiro Yamashita, Yuto Harada and Yohei Oseki 232

What to Predict? Exploring How Sentence Structure Influences Contrast Predictions in Humans and Large Language Models
Shuqi Wang, Xufeng Duan and Zhenguang Cai 244

Investigating noun-noun compound relation representations in autoregressive large language models
Saffron Kendrick, Mark Ormerod, Hui Wang and Barry Devereux 253

Non-archival papers

The LLM Language Network: A Neuroscientific Approach for Identifying Causally Task-Relevant Units
Badr AlKhamissi, Greta Tuckute, Antoine Bosselut and Martin Schrimpf

Modeling Pragmatic Accommodation: A [Rational, Irrational] Speaker in a [Wonky, Normal] World
Muxuan He, Elsi Kaiser and Khalil Iskarous

Spontaneous Speech Variables for Evaluating LLMs Cognitive Plausibility
Sheng-Fu Wang, Laurent Prevot, Jou-an Chi, Ri-Sheng Huang and Shu-Kai Hsieh

Event Order Recognition in BERT: Evidence from Temporal Connectives
Hannah S. Rognan and Shohini Bhattasali

Logical forms complement probability in understanding language model (and human) performance
Yixuan Wang and Freda Shi

Syntactic Learnability of Echo State Neural Language Models at Scale
Ryo Ueda, Tatsuki Kuribayashi, Shunsuke Kando and Kentaro Inui

A Preliminary Analysis of the Predictive Power of Surprisal in Reading Chinese
Hongao Zhu, Muxiaoqiao Xu, Siyuan Song, Yikang Liu, Yuxia Wang and Hai Hu

Humanlikeness of LLMs in Mental Lexicon
Bei Xiao, Xufeng Duan and Zhenguang Cai

FiSMiness: A Finite State Machine Based Paradigm for Emotional Support Conversations
Yue Zhao, Qingqing Gu, Xiaoyu Wang, Teng Chen, Zhonglin Jiang, Yong Chen and Luo Ji

Program

Saturday, May 3, 2025

09:00 - 09:10 *Opening Remarks*

09:10 - 10:10 *Invited talk by Dr. John Hale*

10:10 - 10:50 *Session 1: Oral Presentations*

Capturing Online SRC/ORC Effort with Memory Measures from a Minimalist Parser
Aniello De Santo

Quantifying Semantic Functional Specialization in the Brain Using Encoding Models of Natural Language
Jiaqi Chen, Richard Antonello, Kaavya Chaparala, Coen Arrow and Nima Mesgarani

10:50 - 11:10 *Break*

11:10 - 12:20 *Session 2: Poster Presentations*

ParaBLoCC: Parallel Basic Locative Constructions Corpus
Peter Viechnicki and Anthony Kostacos

Profiling neural grammar induction on morphemically tokenised child-directed speech
Mila Marcheva, Theresa Biberauer and Weiwei Sun

Spontaneous Speech Variables for Evaluating LLMs Cognitive Plausibility
Sheng-Fu Wang, Laurent Prevot, Jou-an Chi, Ri-Sheng Huang and Shu-Kai Hsieh

Exploring the Integration of Eye Movement Data on Word Embeddings
Fermín Travi, Gabriel Aimé Leclercq, Diego Fernandez Slezak, Bruno Bianchi and Juan E Kamienkowski

Logical forms complement probability in understanding language model (and human) performance
Yixuan Wang and Freda Shi

A Preliminary Analysis of the Predictive Power of Surprisal in Reading Chinese
Hongao Zhu, Muxiaoqiao Xu, Siyuan Song, Yikang Liu, Yuxia Wang and Hai Hu

Saturday, May 3, 2025 (continued)

SPACER: A Parallel Dataset of Speech Production And Comprehension of Error Repairs
Shiva Upadhye, Jiaxuan Li and Richard Futrell

Towards a Bayesian hierarchical model of lexical processing
Cassandra L Jacobs and Loïc Grobol

Modeling Chinese L2 Writing Development: The LLM-Surprisal Perspective
Jingying Hu and Yan Cong

Beyond Binary Animacy: A Multi-Method Investigation of LMs' Sensitivity in English Object Relative Clauses
Yue Li, Yan Cong and Elaine J. Francis

When Men Bite Dogs: Testing Good-Enough Parsing in Turkish with Humans and Large Language Models
Onur Keleş and Nazik Dinctopal Deniz

Transformers Can Model Human Hyperprediction in Buzzer Quiz
Yoichiro Yamashita, Yuto Harada and Yohei Oseki

12:20 - 13:40 *Lunch break*

13:40 - 14:40 *Invited talk by Dr. Tessa Verhoef*

14:40 - 15:40 *Session 3: Oral Presentations*

Unzipping the Causality of Zipf's Law and Other Lexical Trade-offs
Amanda Doucette, Timothy J. O'Donnell and Morgan Sonderegger

Creolization versus code-switching: An agent-based cognitive model for bilingual strategies in language contact
Charles John Torres, Weijie Xu, Yanting Li and Richard Futrell

Cross-Framework Generalizable Discourse Relation Classification Through Cognitive Dimensions
Yingxue Fu

Saturday, May 3, 2025 (continued)

15:40 - 16:00 *Break*

16:00 - 17:10 *Session 4: Poster Presentations*

The LLM Language Network: A Neuroscientific Approach for Identifying Causally Task-Relevant Units
Badr AlKhamissi, Greta Tuckute, Antoine Bosselut and Martin Schrimpf

Modeling Pragmatic Accommodation: A [Rational, Irrational] Speaker in a [Wonky, Normal] World
Muxuan He, Elsi Kaiser and Khalil Iskarous

Linguistic Blind Spots of Large Language Models
Jiali Cheng and Hadi Amiri

From Punchlines to Predictions: A Metric to Assess LLM Performance in Identifying Humor in Stand-Up Comedy
Adrianna Romanowski, Pedro H. V. Valois and Kazuhiro Fukui

Event Order Recognition in BERT: Evidence from Temporal Connectives
Hannah S. Rognan and Shohini Bhattasali

Syntactic Learnability of Echo State Neural Language Models at Scale
Ryo Ueda, Tatsuki Kuribayashi, Shunsuke Kando and Kentaro Inui

Distinct social-linguistic processing between humans and large audio-language models: Evidence from model-brain alignment
Hanlin Wu, Xufeng Duan and Zhenguang Cai

Are Larger Language Models Better at Disambiguation?
Ziyuan Cao and William Schuler

An Empirical Study of Language Syllabification using Syllabary and Lexical Networks
Rusali Saha and Yannick Marchand

Humanlikeness of LLMs in Mental Lexicon
Bei Xiao, Xufeng Duan and Zhenguang Cai

Investigating noun-noun compound relation representations in autoregressive large language models
Saffron Kendrick, Mark Ormerod, Hui Wang and Barry Devereux

FiSMiness: A Finite State Machine Based Paradigm for Emotional Support Conversations
Yue Zhao, Qingqing Gu, Xiaoyu Wang, Teng Chen, Zhonglin Jiang, Yong Chen and Luo Ji

17:15 - 17:55 *Session 5: Oral Presentations*

"Is There Anything Else?": Examining Administrator Influence on Linguistic Features from the Cookie Theft Picture Description Cognitive Test
Changye Li, Zhecheng Sheng, Trevor Cohen and Serguei V. S. Pakhomov

What to Predict? Exploring How Sentence Structure Influences Contrast Predictions in Humans and Large Language Models
Shuqi Wang, Xufeng Duan and Zhenguang Cai

17:55 - 18:10 *Closing Remarks*