

EACL 2024

**The 18th Conference of the European Chapter of the  
Association for Computational Linguistics**

**Proceedings of the Conference, Vol. 2 (Short Papers)**

March 17-22, 2024

The EACL organizers gratefully acknowledge the support from the following sponsors.

## Platinum



**Megagon Labs**

## Gold



## Bronze



## D&I Champion



©2024 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](mailto:acl@aclweb.org)

ISBN 979-8-89176-089-9

## Message from the General Chair

Welcome to the 18th Conference of the European Chapter of the Association for Computational Linguistics. EACL is the flagship European conference dedicated to European and international researchers, covering a wide spectrum of research in Computational Linguistics and Natural Language Processing.

Organizing a scientific conference of the prestige and size of EACL is a great honor, a great responsibility, and a great challenge. The challenges started right at the beginning. When I accepted the invitation to be general chair, even after the program chairs Yvette Graham and Matt Purver accepted, we didn't know where the conference would be located. Eventually, we settled on Malta, a wonderful island in the Mediterranean with lovely weather in March. Well, putting it in March was the next challenge as the conference dates were moved backwards a couple of times, turning the entire organization of the conference into a race against time.

Another big challenge was the joint effort of all \*ACL 2024 conferences to streamline the review process by moving it completely to ACL Rolling Review. While there had been some attempts to integrate ARR into the conference reviewing process, 2024 will be the year where we see whether it actually works. I'd like to thank Yvette and Matt for being so brave to chair the first conference in 2024 adopting ARR only. I'd also like to thank the General Chairs of NAACL 2024 and ACL 2024, Katrin Erk and Claire Gardent, and their respective PC chairs to join the effort. Without the ARR team this could not have worked out, namely the ARR Editors in Chief, Mausam, Viviane Moreira, Vincent Ng, Lilja Øvrelid, Tamar Solorio, and Jun Suzuki were indispensable for making this happen.

For me it started all with Roberto Basili and Preslav Nakov, the 2023 and 2024 Presidents of EACL, asking me whether I'd like to serve as general chair for EACL 2024 – thanks for having trusted me to manage the organization of the conference. After Yvette Graham and Matt Purver accepted the role of PC chairs, I knew that I wouldn't have to worry anymore about the scientific program. A big thanks to Yvette and Matt! Behind the scenes Jennifer Rachford (ACL Event Manager) and her team, in particular Megan Haddad and Jon M. Dorsey, made the impossible happen. Jenn does what we scientists are not good at, and then a lot more. I don't know how we could have run EACL 2024 without her. Roberto Basili, Preslav Nakov, the EACL board, and David Yarowsky (ACL treasurer) provided me with information, advice and feedback whenever I needed it. A great thanks also goes to the EACL 2024 workshop chairs, Nafise Moosavi and Zeerak Talat! Because EACL is the first conference in 2024, they spearheaded the \*ACL joint call for workshop proposals. They worked with an extremely tight timeline, created a very interesting workshop program and had the organizers of 19 workshops under control. Very impressive, Nafise and Zeerak!

A special thanks goes to Claudia Borg from the University of Malta. Claudia was instrumental for the success of the conference dealing with all sorts of local issues. She helped us selecting the venue, connected us with local event organizers, was part of the volunteer program, and made sure that visas were issued to participants who needed them. Claudia is great!

And then ...

- The tutorial chairs, Sharid Loáicga and Mohsen Mesgar, worked together with the tutorial chairs of all \*ACL conferences to review tutorial proposals and select some for EACL 2024.
- The demonstration chairs, Orphée de Clercq and Nikolaos Aletras, created the demo program for EACL 2024.
- The student research workshop chairs, Neele Falk, Sara Papi, and Mike Zhang, along with their faculty advisors Parisa Kordjamshidi and Steffen Eger, took care about the next generation of NLP researchers.

- The publication chairs, Gözde Gül Sahin and Danilo Croce, did a tremendous job in getting all the papers into a nice shape worthy of the European flagship conference in Computational Linguistics.
- The handbook chair, Marco Polignano, helped us to navigate through the program so that we wouldn't miss any interesting presentation.
- The sponsorship chairs, Daniel Dahlmeier and Pasquale Minervini, worked together with the ACL sponsorship director Chris Callison-Burch to make EACL 2024 the ends meet in economically challenging times.
- The diversity and inclusion chairs, Hanan Al Darmaki, Sabine Weber, and Maciej Ogrodniczuk, ensured that researchers who are not from the global north can join our conference, in person or virtually. They also kicked off an amazing set of D&I events at the conference.
- The publicity chairs, Miryam de Lhoneux, Sungho Jeon, and Yuval Pinter, spread the word – and also pictures – through social media platforms.
- The website chairs, Mladen Karan and Wei Zhao, created a beautiful webpage. They were super responsive. Thanks a lot for the good work!
- The local ambassador, Max Bartolo, provided us with information on Malta early on. Talk to him for food options, bars, excursions, fun stuff to do!
- The ethics chairs, Annemarie Friedrich and Anne Lauscher, helped us to solve difficult ethical issues with the papers.
- The student volunteer chairs, Claudia Borg, Desmond Elliott, and Juntao Yu, went through many applications, selected the student volunteers, and assigned them their tasks.
- The visa chairs Claudia Borg and Yufang Hou helped conference participants to obtain their visas.
- The Technical Infrastructure Chairs, Wei Liu and Sungho Jeon, enabled us to navigate through the program with ease via MiniConf and to discuss via Rocket.Chat.
- The entire program committee, senior area chairs, area chairs, reviewers, and best paper committee, was essential for ensuring our high-quality scientific program.
- We couldn't run our conference without our student volunteers. A big thanks to all of them!
- Finally, I'd like to thank our invited speakers, Mirella Lapata and Hinrich Schütze, and the Karen Spärck Jones Award Winner 2023, Hongning Wang, for delivering inspiring keynote speeches.

The online side of our hybrid conference was provided by Underline (Sol Rosenberg, Damira Mrcic, and their team), who also provided us with support for managing the entire conference.

I would like to thank our sponsors for funding the conference, providing subsidies for students and financing the diversity and inclusion initiative.

Enjoy EACL 2024! Insellimkom,

Michael Strube  
Heidelberg Institute for Theoretical Studies, Heidelberg, Germany

EACL 2024 General Chair

## Message from the Program Chairs

Welcome to the 18th Conference of the European Chapter of the Association for Computational Linguistics (EACL) to take place in Malta. As with last year, the conference is being held in a hybrid mode, with both audiences and presenters able to attend online. Presentation videos, slides and posters will all be available online to make the experience as good as possible. However, we're very happy to see that most presenters in oral and poster sessions are opting to be there in-person, so we're looking forward to an interactive and exciting conference.

### Submission and Acceptance

EACL 2024 was the first \*ACL Conference to accept all submissions via ACL Rolling Review (ARR). This brought some significant advantages: a consistent system across \*ACL conferences, as well as the experience and assistance of the ARR team, and of course the ability to revise and resubmit papers rather than just being rejected out of hand.

However, this change does make it somewhat more difficult to calculate acceptance rates. Most papers committed to EACL 2024 came from the ARR October 2023 cycle, and most papers in that cycle were intended for EACL 2024; but some EACL papers came from other ARR cycles; and some papers in the October 2023 cycle were intended for other, later conferences rather than EACL. Many authors indicated their target when submitting to ARR, but not all; and some change their minds.

In the end we opted for the following approach: we take the pool of potential candidates as being papers in the relevant ARR cycle that either selected EACL as a target, did not select any target conference, or selected another target conference but then committed to EACL anyway; together with papers from other ARR cycles that committed to EACL. We include those that withdrew after getting reviews, but not those that withdrew before or were desk-rejected.

In total, EACL 2024 ARR October cycle received 1,275 submissions, with a large portion (78%) being long as opposed to short papers. 52 papers were desk rejected for various reasons (e.g. breaching the ACL anonymity or multiple submission policy, significant formatting violations) and 17 were withdrawn by the authors before reviews were received. 474 papers then committed to EACL 2024, of which we accepted 226 to the main conference, and a further 163 to the Findings of the ACL. The pool of potential candidates as defined above numbered 1,114 papers, giving an overall acceptance rate of 20.3% to the main conference and 14.5% to Findings. This is comparable to other recent \*ACL conferences (EACL 2023 quoted 24.1% and 17.2% respectively), but it's hard to compare directly given such a significant change in the submission process. The conference programme also features three papers from the Transactions of the Association for Computational Linguistics (TACL) journal, and one from the Computational Linguistics (CL) journal.

### Presentation Mode

From the resulting total of 230 papers accepted to the conference, we invited 144 to be presented orally, with the others presenting in poster sessions. We made the decision on which papers would be invited for oral poster presentations based on several factors: recommendations by Senior Area Chairs (SACs) and meta-reviewers about presentation mode and best paper prize potential, grouping of papers into thematic sessions, and confirmation from authors that they planned to attend the conference in person. For TACL and CL papers, the authors' preference of presentation mode was used.

Authors of papers accepted to the Findings of the ACL could opt to present a poster, and 113 (69%) chose to do so. We also gave oral paper presenters the option to present a poster, with 37 (25%) choosing to do so; this gave a total of 232 posters being presented at the conference. All oral sessions are being held as in-person plenary sessions (although with some online presenters), and all poster sessions are in-person except one fully virtual poster session.

## Limitations Section

As in EACL 2023, and now standard practice in ARR, we required inclusion of a Limitations section, including all major limitations of the work. As with past events, this is intended to discourage the practice of hyping conclusions drawn in work published at EACL, sticking to better scientific practice.

## Areas, Programme Committee Structure and Reviewing

We divided submissions into 24 distinct areas and asked authors to choose the most appropriate area to submit their work to. The three areas to receive the largest number of submissions were NLP Applications, Resources and Evaluation, and Interpretability and Analysis of Models for NLP.

Senior members of the NLP community were directly invited to act as Senior Area Chair (SAC), with 2–3 SACs per area. Area Chairs (ACs) were then recruited partly from ARR’s existing pool, and partly invited directly by SACs to sign up to ARR for the October cycle so they could act as Area Chairs for EACL. In the ARR system, ACs assign themselves to areas and can specify a maximum load, ensuring that ACs can reduce the number of papers they are responsible for at appropriate times; this results in a higher number of ACs than is usual outside of the ARR system. In total, 485 ARR ACs signed up to the October cycle 2023, while a total of 5,854 reviewers indicated availability to review in ARR October cycle. Three reviewers and one AC were automatically assigned to each paper using ARR’s matching algorithm, based on reviewers’ past publications and the maximum load set by reviewers and ACs.

## Best Paper Awards

Following ACL policy, we set up a committee to decide the Best Paper Awards. The committee was given 28 papers by the Program Chairs to consider, papers that were identified by at least one of the program committee, SAC, AC or reviewer as a possible best paper. These papers were anonymized via black out of author information, links to code, and acknowledgements sections in the camera ready papers. The selected best papers and runners up will be announced at the conference.

## Ethics Committee

We also set up an ethics committee, so that papers flagged by reviewers or ACs as having potential ethical concerns could be sent for separate ethics review. A small number of papers were accepted conditional on final re-reviewing to check that outstanding concerns were dealt with in the final camera ready paper; we’re happy to confirm that all such papers were accepted.

## Keynotes

We are delighted to include 2 Keynote talks in the plenary sessions:

- Prof. Mirella Lapata: Prompting is *\*not\** all you need! Or why Structure and Representations still matter in NLP
- Prof. Hinrich Schütze: Quality Data for LLMs: Challenges and Opportunities for NLP

Furthermore, we include a lecture from the winner of this year’s Karen Spärck Jones Award:

- Prof. Hongning Wang: Human vs. Generative AI in Content Creation Competition: Symbiosis or Conflict?

## Thank Yous

EACL 2024 would not have happened without the help and support of the NLP community. So much of the event relies on voluntary efforts with people very generously giving their time and energy. We would like to acknowledge everyone involved, with a special thanks to:

- EACL 2024 General Chair, Michael Strube, for leading the overall conference organisation and providing advice and support to the PCs and many others through the conference preparations;
- Our 56 Senior Area Chairs, who did a fantastic job of managing the review process for their individual areas;
- The 485 Area Chairs, who put in an enormous effort in as much as possible ensuring papers were given the best consideration by reviewers;
- All the reviewers, who very generously give up their time to this process;
- The Best Paper Award Committee, and especially the chair Barbara Plank, with the difficult task of choosing winners from the large number considered for this award;
- Our Ethics Committee, especially the chairs Annemarie Friedrich and Anne Lauscher, for diligently checking and maintaining the high ethical standards we strive for at \*ACL conferences;
- Publicity Chairs, Miryam de Lhoneux, Sungho Jeon and Yuval Pinter, and Website Chairs Mladen Karan and Wei Zhao, for managing our communications and fulfilling all requests sent so quickly;
- Publications Chairs, Danilo Croce and Gözde Gül Şahin, and Handbook Chair Marco Polignano, for the many hours dedicated to producing our fine proceedings and handbook;
- Jordan Zhang for invaluable assistance with building the conference schedule;
- The ARR team, particularly Tamar Solorio, Lilja Øvrelid and Harold Rubio, for so much support and advice during the review process;
- Damira Mršić from Underline and the ACL's Jennifer Rachford for their huge efforts to make EACL a success both online and on-site.

Overall, everyone we came into contact with during the process was exceptionally professional and great to work with, thank you all for this, it is so important!

We're looking forward to a great EACL 2024, we hope you enjoy it and we look forward to seeing you there.

Yvette Graham (Trinity College Dublin)

Matthew Purver (Queen Mary University of London & Jožef Stefan Institute)

EACL 2024 Programme Committee Co-Chairs

## Message from the Local Chair

Dear EACL2024 Participants,

It is with immense joy that I welcome you to the EACL2024 conference, held in the heart of the Mediterranean - Malta, an island nation celebrated for its vibrant diversity and intricate history.

We are brought together by a common passion, that of processing language. We are in a privileged position to understand the power of language, that of connecting people. But one of the most fascinating aspects of human language is its diversity. Take Maltese as an example: a Semitic language, written in Latin script, with mixed influences from Arabic, Italian and English. Since becoming an official European language, Maltese has been given more visibility, facilitating the creation of digital resources. Yet it is still a low-resource language, ranking lowest amongst all official EU languages.

In the era of LLMs and GPUs, the opportunity to work with a low-resource language like Maltese is not just about finding creative ways of processing the language, but becomes an interesting dive into its roots and understanding how history shaped it over time. It goes beyond racing for better accuracy and F1 scores. Instead, we try to find ways of connecting the language of today with the roots of its past.

As we embark on this exciting week, I invite you to immerse yourself not only in the groundbreaking research and discussions but also in the rich tapestry of Maltese culture and language. Let the diversity of Malta inspire you, spark your curiosity, and enrich your experience during your stay.

I extend my heartfelt gratitude to the local organisation team, particularly Stephanie Abela Tickle and her colleagues at Meet360. Their dedication and hard work have been pivotal in bringing this conference to life. I also thank my colleagues and students at the University of Malta for their steering work.

In closing, I hope that EACL2024 will be a source of inspiration and collaboration for all.

*Merħba f' Malta!*

Claudia Borg  
University of Malta

Local Chair, EACL 2024

# Organizing Committee

## General Chair

Michael Strube, Heidelberg Institute for Theoretical Studies

## Program Chairs

Yvette Graham, Trinity College Dublin

Matthew Purver, Queen Mary University of London & Jožef Stefan Institute

## Workshop Chairs

Nafise Moosavi, University of Sheffield

Zeerak Talat, Simon Fraser University

## Tutorial Chairs

Sharid Loaiciga, University of Gothenburg

Mohsen Mesgar, Bosch Center for Artificial Intelligence

## Demonstration Chairs

Nikolaos Aletras, University of Sheffield

Orphee de Clercq, Ghent University

## Student Research Workshop Chairs

Neele Falk, University of Stuttgart

Sara Papi, University of Trento & Fondazione Bruno Kessler

Mike Zhang, IT University Copenhagen

## Faculty Advisors to Student Research Workshop Chairs

Steffen Eger, University of Bielefeld

Parisa Kordjamshidi, Michigan State University

## Publication Chairs

Danilo Croce, University of Rome Tor Vergata

Gözde Gül Şahin, Koç University

## Handbook Chair

Marco Polignano, University of Bari Aldo Moro

## Sponsorship Chairs

Daniel Dahlmeier, SAP

Pasquale Minervini, University of Edinburgh

### **Diversity and Inclusion Chairs**

Hanan Al Darmaki, MBZUAI

Maciej Ogrodniczuk, Institute of Computer Science, Polish Academy of Sciences

Sabine Weber, VDI/VDE Innovation

### **Publicity Chairs**

Miryam de Lhoneux, KU Leuven

Sungho Jeon, Heidelberg Institute for Theoretical Studies

Yuval Pinter, Ben-Gurion University of the Negev

### **Website Chairs**

Mladen Karan, Queen Mary University of London

Wei Zhao, University of Aberdeen

### **Local Ambassador**

Max Bartolo, Cohere

### **Ethics Chairs**

Annemarie Friedrich, University of Augsburg

Anne Lauscher, University of Hamburg

### **Student Volunteer Chairs**

Claudia Borg, University of Malta

Desmond Elliott, University of Copenhagen

Juntao Yu, Queen Mary University of London

### **Visa Chairs**

Claudia Borg, University of Malta

Yufang Hou, IBM Research Ireland

Megan Haddad, ACL Office

# Program Committee

## Discourse and Pragmatics

Yulia Grishina, Amazon Development Center Germany  
Junyi Jessy Li, University of Texas, Austin

## Computational Social Science and Cultural Analytics

Arkaitz Zubiaga, Queen Mary University of London  
Chloé Clavel, Télécom ParisTech and Télécom Paris

## Dialogue and Interactive Systems

Milica Gasic, Heinrich Heine University Duesseldorf  
David Traum, University of Southern California

## Summarization

Maria Liakata, Queen Mary University London  
Mohit Bansal, University of North Carolina at Chapel Hill

## Generation

Shujian Huang, Nanjing University  
Angela Fan, Facebook  
Marco Guerini, Fondazione Bruno Kessler

## Ethics and NLP

Saif M. Mohammad, National Research Council Canada  
Cagri Coltekin, University of Tuebingen  
Kai-Wei Chang, University of California

## Efficient/Low-resource methods in NLP

Dirk Hovy, Bocconi University  
Roi Reichart, Technion, Israel Institute of Technology

## Information Extraction

Qipeng Guo, Shanghai AI Laboratory  
Rodrigo Agerri, University of the Basque Country

## Information Retrieval and Text Mining

Zhiyuan Liu, Tsinghua University  
Sophia Ananiadou, University of Manchester  
Eugene Agichtein, Amazon and Emory University

## **Interpretability and Model Analysis in NLP**

Dieuwke Hupkes, Facebook  
Elena Voita, FAIR at Meta AI and University of Amsterdam

## **Resources and Evaluation**

Valerio Basile, University of Turin  
Joel R. Tetreault, Dataminr

## **Speech and Multimodality**

Pierre Lison, Norwegian Computing Center  
Boyang Li, Nanyang Technological University

## **Language Grounding to Vision, Robotics and Beyond**

Gabriel Skantze, KTH Royal Institute of Technology  
Yonatan Bisk, Meta and Carnegie Mellon University

## **Linguistic Theories, Cognitive Modeling and Psycholinguistics**

Raquel Fernández, University of Amsterdam  
Emily Prud'hommeaux, Boston College

## **Machine Learning for NLP**

Isabelle Augenstein, University of Copenhagen  
Nikolaos Pappas, AWS AI Labs  
Colin Cherry, Google

## **Machine Translation**

François Yvon, Université Pierre et Marie Curie  
Philipp Koehn, Johns Hopkins University

## **Multilinguality and Language Diversity**

Goran Glavaš, Julius-Maximilians-Universität Würzburg  
Steven Bird, Charles Darwin University  
Yang Feng, Institute of Computing Technology, Chinese Academy of Sciences

## **NLP Applications**

Diarmuid Ó Séaghdha, Apple  
Karin Verspoor, Royal Melbourne Institute of Technology  
Shuai Wang, Amazon

## **Question Answering**

Alessandro Moschitti, Amazon Alexa AI  
Yansong Feng, Peking University

Wenpeng Yin, Pennsylvania State University

### **Semantics - Lexical**

Jose Camacho-Collados, Cardiff University  
Chris Brew, Lexis Nexis

### **Semantics - Sentence-level Semantics, Textual Inference and other areas**

Gülşen Eryiğit, Istanbul Technical University  
Tushar Khot, Allen Institute for Artificial Intelligence

### **Sentiment Analysis, Stylistic Analysis and Argument Mining**

Xuanjing Huang, Fudan University  
David Vilares, Universidade da Coruña

### **Phonology, Morphology, and Word Segmentation**

Ryan Cotterell, Swiss Federal Institute of Technology  
Francis M. Tyers, Indiana University

### **Syntax - Tagging, Chunking and Parsing**

Bernd Bohnet, Google Deep Mind  
Miryam De Lhoneux, KU Leuven

### **Area Chairs**

Gavin Abercrombie, David Ifeoluwa Adelani, Zeljko Agic, Wasi Uddin Ahmad, Antonios Anastasopoulos, Mark Anderson, Jacob Andreas, Ehsaneddin Asgari, Wilker Aziz, Timothy Baldwin, Pierpaolo Basile, Ali Basirat, Jasmijn Bastings, Timo Baumann, Eyal Ben-David, Farah Benamara, Alexandra Birch, Eduardo Blanco, Leonid Boytsov, Thomas Brochhagen, Emanuele Bugliarello, Wray Buntine, Aoife Cahill, Ruken Cakici, Pengfei Cao, Dallas Card, Tommaso Caselli, Tanmoy Chakraborty, Ilias Chalkidis, Angel X Chang, Snigdha Chaturvedi, Kehai Chen, Long Chen, Lu Chen, Wenhui Chen, Xiang Chen, Yun-Nung Chen, Zhiyu Chen, Colin Cherry, Eunsol Choi, Leshem Choshen, Monojit Choudhury, Simone Conia, Mathias Creutz, Anna Currey, Raj Dabre, Verena Dankers, Budhaditya Deb, Vera Demberg, Li Dong, Ruihai Dong, Eduard Dragut, Nan Duan, Kevin Duh, Greg Durrett, Ondrej Dusek, Julian Martin Eisenschlos, Luis Espinosa-Anke, Allyson Ettinger, Kilian Evang, Alexander Fabbri, Agnieszka Falenska, Meng Fang, Naomi Feldman, Xiaocheng Feng, Francis Ferraro, Elisabetta Fersini, Mark Fishel, Matthias Gallé, Siddhant Garg, Rob Van Der Goot, Kyle Gorman, Tanya Goyal, Lin Gui, Ivan Habernal, Barry Haddow, Xianpei Han, Peter Hase, Michael Heck, Behnam Hedayatnia, Peter Heeman, Enamul Hoque, Yufang Hou, Xuming Hu, Lifu Huang, Kentaro Inui, Kokil Jaidka, Hyeju Jang, Lifeng Jin, Preethi Jyothi, Shubhra Kanti Karmaker Santu, Taeuk Kim, Roman Klinger, Mamoru Komachi, Rik Koncel-Kedziorski, Lingpeng Kong, Julia Kreutzer, Amrith Krishna, Kalpesh Krishna, Wai Lam, Mirella Lapata, Staffan Larsson, Mark Last, Ivano Lauriola, Thu Le, Dong-Ho Lee, SangKeun Lee, Heather Lent, Gina-Anne Levow, Chuyuan Li, Junhui Li, Juntao Li, Peng Li, Piji Li, Sujian Li, Yu Li, Constantine Lignos, Robert Litschko, Kang Liu, Tingwen Liu, Xuebo Liu, Yang Liu, Zoey Liu, Ximing Lu, Anh Tuan Luu, Chenyang Lyu, Ji Ma, Ruotian Ma, Andrea Madotto, Yuning Mao, Lara J. Martin, Bruno Martins, Sérgio Matos, Julian McAuley, Mahnoosh Mehrabani, Ivan Vladimir

Meza Ruiz, Margot Mieskes, David R Mortensen, Smaranda Muresan, Thomas Müller, Nona Naderi, Mikio Nakano, Hideki Nakayama, Isar Nejadgholi, Qiang Ning, Maciej Ogrodniczuk, Naoaki Okazaki, Manabu Okumura, Joonsuk Park, Yannick Parmentier, Ramakanth Pasunuru, Hao Peng, Lis Pereira, Laura Perez-Beltrachini, Maxime Peyrard, Bryan A. Plummer, Maja Popovic, Daniel Preotiuc-Pietro, Deepak Ramachandran, Carlos Ramisch, Shauli Ravfogel, Marek Rei, Leonardo F. R. Ribeiro, Oleg Rokhlenko, Joseph Le Roux, Alla Rozovskaya, Terry Ruas, Maria Ryskina, Maarten Sap, Naomi Saphra, Asad B. Sayeed, Viktor Schlegel, Natalie Schluter, Jingbo Shang, Lei Shu, Kevin Small, Yan Song, Yangqiu Song, Aitor Soroa, Sara Stymne, Jinsong Su, Saku Sugawara, Alessandro Suglia, Aixin Sun, Kai Sun, Gözde Gül Şahin, Zeerak Talat, Chenhao Tan, Tianyi Tang, Harish Tayyar Madabushi, Sara Tonelli, Amine Trabelsi, David Traum, Kewei Tu, Olga Vechtomova, Yannick Versley, Thuy Vu, Dakuo Wang, Longyue Wang, Zhongqing Wang, Taro Watanabe, John Frederick Wieting, Kam-Fai Wong, Lijun Wu, Rui Yan, Min Yang, Wei Yang, Jin-Ge Yao, Naoki Yoshinaga, Koichiro Yoshino, Jianfei Yu, Mo Yu, Fabio Massimo Zanzotto, Weixin Zeng, Biao Zhang, Jiajun Zhang, Meishan Zhang, Ningyu Zhang, Shaolei Zhang, Hai-Tao Zheng, Zaixiang Zheng, Jie Zhou, Yi Zhou, Yftah Ziser

## Reviewers

Omri Abend, Giuseppe Abrami, Ibrahim Abu Farha, Tosin Adewumi, Somak Aditya, Stergos D. Afantenos, Sumeet Agarwal, Ehsan Aghazadeh, Don Joven Agravante, Ameeta Agrawal, Sweta Agrawal, Alham Fikri Aji, Benjamin Ayoade Ajibade, Nader Akoury, Amal Alabdulkarim, Özge Alacam, Firoj Alam, Georgios Alexandridis, Hassan Alhuzali, Alexandre Allauzen, Raghuram Mandyam Annasamy, Luca Anselma, Dimosthenis Antypas, Ramakrishna Appicharla, Negar Arabzadeh, Jun Araki, Ignacio Arroyo-Fernández, Ekaterina Artemova, Masayuki Asahara, Akari Asai, Daiki Asami, Elliott Ash, Nicholas Asher, Berk Atıl, Abdul Hameed Azeemi

Vikas Bahirwani, Fan Bai, Jiabin Bai, Long Bai, Xuefeng Bai, Vevake Balaraman, Naman Bansal, Forrest Sheng Bao, Yuwei Bao, Leslie Barrett, Alberto Barrón-Cedeño, Luke Bates, Khuyagbaatar Batsuren, Tilman Beck, Wiem Ben Rim, Gábor Berend, Dario Bertero, Prabin Bhandari, Aditya Bhargava, Shruti Bhargava, Shaily Bhatt, Arnab Bhattacharya, Rajarshi Bhowmik, Ning Bian, Iman Munire Bilal, Su Lin Blodgett, Jelke Bloem, Ben Bogin, Nikolay Bogoychev, Robert Bossy, Tom Bourgeade, Laurestine Bradford, Stephanie Brandl, Thomas Brovelli, Yash Parag Butala, Jan Buys, Bill Byrne

Sky CH-Wang, Samuel Cahyawijaya, Pengshan Cai, Jie Cao, Qingqing Cao, Rui Cao, Yixin Cao, Yu Cao, Ronald Cardenas, Rémi Cardon, Danilo Carvalho, Camilla Casula, Yekun Chai, Saikat Chakraborty, Hou Pong Chan, Haw-Shiuan Chang, Tyler A. Chang, Aditi Chaudhary, Kushal Chawla, Gullal Singh Cheema, Angelica Chen, Bin Chen, Chung-Chi Chen, Guanhua Chen, Guanyi Chen, Hang Chen, Hanjie Chen, Huiyao Chen, Jiawei Chen, Jiayi Chen, Junjie Chen, Kai Chen, Maximillian Chen, Pinzhen Chen, Qian Chen, Qianglong Chen, Shan Chen, Sishuo Chen, Xiangnan Chen, Xiuying Chen, Xuxi Chen, Yi Chen, Yi-Pei Chen, Yingfa Chen, Yulin Chen, Yulong Chen, Fei Cheng, Hua Cheng, Liying Cheng, Lu Cheng, Emmanuele Chersoni, Cheng-Han Chiang, David Chiang, Patricia Chiril, Juhwan Choi, Seungtaek Choi, Prafulla Kumar Choubey, Arijit Ghosh Chowdhury, Fenia Christopoulou, Alexandra Chronopoulou, KuanChao Chu, Yun-Wei Chu, Yung-Sung Chuang, Philipp Cimiano, Miruna Cliniciu, Iulia Maria Comsa, Anna Corazza, Paul A. Crook, Ruixiang Cui, Shiyao Cui, Yiming Cui, Washington Cunha, Amanda Cercas Curry, Tonya Custis, Erion Çano

Hongliang Dai, Yong Dai, David Dale, Marco Damonte, Souvik Das, Sam Davidson, Ernest Davis, José G. C. De Souza, Steve DeNeefe, Julien Delaunay, David Demeter, Çağatay Demiralp,

Shumin Deng, Yang Deng, Yuntian Deng, Sourabh Dattatray Deoghare, Jwala Dhamala, Maria Pia Di Buono, Bosheng Ding, Shuoyang Ding, Saket Dingliwal, Sumanth Doddapaneni, Bo Dong, Ning Dong, Xiangjue Dong, Qingyun Dou, Zi-Yi Dou, Antoine Doucet, Lan Du, Mengnan Du, Yufeng Du, Yupei Du, Ondrej Dusek, Ritam Dutt

Aleksandra Edwards, Roxanne El Baff, Mohamed Elgaar, Ahmed Elgohary, Desmond Elliott, Micha Elsner, Ali Emami, Guy Emerson, Elena V. Epure

Neele Falk, Qingkai Fang, Wei Fang, Nils Feldhus, Dongji Feng, Shutong Feng, Xiachong Feng, Yukun Feng, Elisa Ferracane, Besnik Fetahu, Alejandro Figueroa, Matthew Finlayson, Jack Fitzgerald, Antske Fokkens, José A.r. Fonollosa, Anette Frank, Kathleen C. Fraser, Dayne Freitag, Xingyu Fu

David Gaddy, Baban Gain, Sudeep Gandhe, Vineet Gandhi, Revanth Gangi Reddy, William Gantt, Mingqi Gao, Pengzhi Gao, Songyang Gao, Tianyu Gao, Marcos Garcia, Ankush Garg, Muskan Garg, Sarthak Garg, Kiril Gashteovski, Rong Ge, Xiou Ge, Aryo Pradipta Gema, Ariel Gera, Sayan Ghosh, Soumitra Ghosh, Sucheta Ghosh, Nathan Godey, Philip John Gorinski, Venkata Subrahmanyan Govindarajan, Thamme Gowda, Kartik Goyal, Morgan A. Gray, Loïc Grobol, Niko Grupen, Xiaotao Gu, Yu Gu, Yuxian Gu, Yuxuan Gu, Nuno M Guerreiro, Liane Guillou, Camille Guinaudeau, Kalpa Gunaratna, Hao Guo, Shaoru Guo, Shoutao Guo, Xiaobo Guo, Zhen Guo, Prakhar Gupta

Samar Haider, Skyler Hallinan, Injy Hamed, Namgi Han, Viktor Hangya, Shibo Hao, Kazuma Hashimoto, Nabil Hathout, Shreya Havaldar, Yoshihiko Hayashi, Timothy J. Hazen, Jianfeng He, Jie He, Zhengqi He, Zihao He, Philipp Heinisch, Benjamin Heinzerling, William Barr Held, Nico Herbig, Christopher Hidey, Tsutomu Hirao, Toshio Hirasawa, Eran Hirsch, Julia Hirschberg, Cuong Hoang, Andrea Horbach, Yifan Hou, David M Howcroft, I-Hung Hsu, Bozhen Hu, Jinyi Hu, Linmei Hu, Yushi Hu, Zhe Hu, Chao-Wei Huang, Danqing Huang, Haojing Huang, Jiani Huang, Kuan-Hao Huang, Kung-Hsiang Huang, Min Huang, Quzhe Huang, Ruihong Huang, Siyu Huang, Xiaolei Huang, Yufei Huang, Yuxin Huang, Ben Hutchinson, Katharina Hämmerl

Robert L. Logan IV, Taichi Iki, Dmitry Ilvovsky, Sathish Reddy Indurthi, Go Inoue, Hitoshi Isahara, Md Saiful Islam, Hamish Ivison, Tomoya Iwakura

Labiba Jahan, Eugene Jang, Myeongjun Erik Jang, Christopher William Jenkins, Soyeong Jeong, Rahul Jha, Harsh Jhamtani, Wei Ji, Yuxiang Jia, Chao Jiang, Ming Jiang, Xiaotong Jiang, Yuxin Jiang, Ziyue Jiang, Wenxiang Jiao, Di Jin, Lianwen Jin, Qiao Jin, Xiaolong Jin, Xisen Jin, Yiping Jin, Zhi Jin, Zhuoran Jin, Shailza Jolly, Martin Josifoski

Jushi Kai, Mihir Kale, Ryo Kamoi, Jaap Kamps, Hiroshi Kanayama, Alina Karakanta, Marzena Karpinska, Zdeněk Kasner, Carina Kauf, Pride Kavumba, Hideto Kazawa, Pei Ke, Frank Keller, Casey Kennington, Natthawut Kertkeidkachorn, Santosh Kesiraju, Simran Khanuja, Vivek Khetan, Gyuwan Kim, Jihyuk Kim, Jongho Kim, Kang-Min Kim, Youngwook Kim, Tracy Holloway King, Svetlana Kiritchenko, Hirokazu Kiyomaru, Mateusz Klimaszewski, Mare Koit, Alexander Koller, Fajri Koto, Venelin Kovatchev, Satyapriya Krishna, Marco Kuhlmann, Sebastian Kula, Mayank Kulkarni, Saurabh Kulshreshtha, Florian Kunneman, Jenny Kunz, Tatsuki Kuribayashi, Kemal Kurniawan, Andrey Kutuzov, Abdullatif Köksal

Yucheng LI, Matthieu Labeau, Yuxuan Lai, John P. Lalor, Tsz Kin Lam, Vasileios Lamos, Mirella Lapata, Stefan Larson, Md Tahmid Rahman Laskar, Chia-Hsuan Lee, Dongkyu Lee, Jaeseong Lee, Ji-Ung Lee, Joosung Lee, Yongjae Lee, Shuo Lei, Wenqiang Lei, Elisa Leonardelli, Colin

Leong, Piyawat Lertvittayakumjorn, Martha Lewis, Bryan Li, Chong Li, Diya Li, Dongyuan Li, Hao Li, Haonan Li, Haoran Li, Hongshan Li, Hui Li, Irene Li, Jialu Li, Jiaoda Li, Jiazhao Li, Jieyu Li, Judith Yue Li, Junyi Li, Linjun Li, Linyang Li, Minghan Li, Qi Li, Qing Li, Qiuchi Li, Shuyue Stella Li, Tao Li, Tianyi Li, Wenhao Li, Xiang Lorraine Li, Xiangci Li, Xiao Li, Xiaonan Li, Xintong Li, Yanyang Li, Yaoyiran Li, Yinghui Li, Yingya Li, Yitong Li, Yiwei Li, Yuan Li, Zhuang Li, Ziyang Li, Zongxi Li, Bin Liang, Bin Liang, Weixin Liang, Xiaobo Liang, Xiaozhuan Liang, Xinnian Liang, Yan Liang, Yunlong Liang, Lizi Liao, Qing Liao, Jindřich Libovický, Gilbert Lim, Chu-Cheng Lin, Xiangyu Lin, Xudong Lin, Zhouhan Lin, Zongyu Lin, LinHai LinHai, Matthias Lindemann, Tal Linzen, Enrico Liscio, Johann-Mattis List, Marina Litvak, Aiwei Liu, Anqi Liu, Boyang Liu, Chen Cecilia Liu, Chi-Liang Liu, Fangyu Liu, Fenglin Liu, Guisheng Liu, Minqian Liu, Qian Liu, Siyang Liu, Tianyuan Liu, Wei Liu, Xiao Liu, Yang Janet Liu, Yihong Liu, Yixin Liu, Yizhu Liu, Yuanxin Liu, Zhengyuan Liu, Zhiwei Liu, Zitao Liu, Ziyi Liu, Adian Liusie, Quanyu Long, Adam Lopez, Jian-Guang Lou, Renze Lou, Di Lu, Jinliang Lu, Kaiji Lu, Ning Lu, Qiu hao Lu, Yaojie Lu, Yujie Lu, Dan Luo, Jiaming Luo, Ziyang Luo, Zhiheng Lyu

Danni Ma, Kaixin Ma, Xueguang Ma, Ziqiao Ma, Mounica Maddela, Brielen Madureira, Khyati Mahajan, Adyasha Maharana, Ayush Maheshwari, Fred Mailhot, Krishanu Maity, Chaitanya Malaviya, Ramesh Manuvinakurike, Shaoguang Mao, Zhiming Mao, Piotr Mardziel, Katerina Margatina, Katja Markert, Marcos Martínez Galindo, Claudia Marzi, Matthew Matero, Ved Mathai, Sandeep Mathias, Puneet Mathur, Yuichiroh Matsubayashi, Julian McAuley, Sabrina McCallum, R. Thomas McCoy, Nikhil Mehta, Clara Meister, Julia Mendelsohn, Xiaojun Meng, Yuanliang Meng, Zaiqiao Meng, Wolfgang Menzel, Yisong Miao, Todor Mihaylov, Elena Mikhalkova, Filip Miletić, Simon Mille, David Mimno, Hideya Mino, Niloofar Mireshghallah, Paramita Mirza, Pushkar Mishra, Shubham Mittal, Yusuke Miyao, Takashi Miyazaki, Jisoo Mok, Nicholas Monath, Syrielle Montariol, Ibraheem Muhammad Moosa, Jose G Moreno, Makoto Morishita, Robert Moro, Luca Moroni, Aida Mostafazadeh Davani, Frank Martin Mtumbuka, Pavankumar Reddy Muddireddy, Aaron Mueller, Anjishnu Mukherjee, Saliha Muradoglu

Sharmila Reddy Nangi, Diane Napolitano, Vivi Nastase, Anandhavelu Natarajan, Mir Tafseer Nayeem, Mariana Neves, Lynnette Hui Xian Ng, Kiet Van Nguyen, Minh-Tien Nguyen, Thong Nguyen, Ansong Ni, Xuanfan Ni, Garrett Nicolai, Liqiang Nie, Malvina Nikandrou, Dmitry Nikolaev, Jinzhong Ning, Tadashi Nomoto, Damien Nouvel, Michal Novák, Sarana Nutanong

Alexander O'Connor, Perez Ogayo, Byung-Doh Oh, Minsik Oh, Shinhyeok Oh, Shu Okabe, Tsuyoshi Okita, Ethel Chua Joy Ong, Yasumasa Onoe, Naoki Otani, Siru Ouyang, Yawen Ouyang, Robert Östling

Aishwarya Padmakumar, Vishakh Padmakumar, Sebastian Padó, Kuntal Kumar Pal, Chester Palen-Michel, Zhufeng Pan, Alexander Panchenko, Chenxi Pang, Liang Pang, Richard Yuanzhe Pang, Eunhwan Park, Jungsoo Park, Seo Yeon Park, Youngja Park, Jacob Parnell, Patrick Paroubek, Alicia Parrish, Peyman Passban, Adam Pauls, Silviu Paun, Sachin Pawar, Siddhesh Milind Pawar, Pavel Pecina, Bo Peng, Letian Peng, Siyao Peng, Laura Perez-Beltrachini, Dominic Petrak, Pavel Petrushkov, Minh-Quang Pham, Francesco Piccinno, Matúš Pikuliak, Tiago Pimentel, Rajesh Piryani, Joan Plepi, Massimo Poesio, Ramesh Poluru, Andrei Popescu-Belis, Maja Popovic, Sravya Popuri, Ian Porada, Darshan Deepak Prabhu, Aniket Pramanick, Radityo Eko Prasojo, Rifki Afina Putri, Valentina Pyatkin

Ehsan Qasemi, Jianzhong Qi, Jingyuan Qi, Linlu Qiu, Shang Qu

Rakesh R Menon, Vipul Raheja, Sunny Rai, Vyas Raina, Hossein Rajaby Faghihi, Sara Rajae, Shihao Ran, Leonardo Ranaldi, Peter A. Rankel, Yanghui Rao, Royi Rassin, Vipul Kumar Ra-

thore, Mathieu Ravaut, Sravana Reddy, Ehud Reiter, Shadi Rezapour, Ryokan Ri, Leonardo F. R. Ribeiro, Caitlin Laura Richter, Darcey Riley, Anthony Rios, Brian Roark, Paul Rodrigues, Dominika Rogozinska, Srikanth Ronanki, Domenic Rosati, Robert Ross, Guy Rotman, Kay Rottmann, Dmitri Roussinov, Dongyu Ru, Yu-Ping Ruan, Koustav Rudra, Frank Rudzicz, Mukund Rungta

Ashish Sabharwal, Mobashir Sadat, Nafis Sadeq, Gaurav Sahu, Oscar Sainz, Tanja Samardzic, Abhilasha Sancheti, Danae Sanchez Villegas, Brenda Salenave Santana, Ryohei Sasano, Msvpj Sathvik, Asad B. Sayeed, Shigehiko Schamoni, Tatjana Scheffler, Yves Scherrer, David Schlangen, Helmut Schmid, Patricia Schmidtová, Steven Schockaert, William Schuler, Elliot Schumacher, Carolin M. Schuster, Sebastian Schuster, Roy Schwartz, Stefan Schweter, Amit Seker, Saptarshi Sengupta, Rico Sennrich, Ovidiu Serban, Sofia Serrano, Silvia Severini, Guokan Shang, Yijia Shao, Yunfan Shao, Yutong Shao, Serge Sharoff, Ravi Shekhar, Ming Shen, Qinlan Shen, Qiang Sheng, Lei Shi, Zhengxiang Shi, Kazutoshi Shinoda, Milind Shyani, Shijing Si, Suzanna Sia, Anthony Sicilia, A.b. Siddique, Damien Sileo, Patrick Simianer, Edwin Simpson, Apoorva Singh, Kairit Sirts, Milena Slavcheva, Jan Snajder, Pia Sommerauer, Haiyue Song, Jiayu Song, Yixiao Song, Gerasimos Spanakis, Alexander Spangher, Makesh Narsimhan Sreedhar, Mukund Sridhar, Balaji Vasanth Srinivasan, Felix Stahlberg, Marija Stanojevic, Katherine Stasaski, Mark Steedman, Julius Steen, Mark Stevenson, Niklas Stoehr, Phillip Benjamin Ströbel, Xin Su, Yusheng Su, Shivashankar Subramanian, Katsuhito Sudoh, Alessandro Suglia, Yoshi Suhara, Hanbo Sun, Rui Sun, Simeng Sun, Zequn Sun, Zhewei Sun, Zijun Sun, Sarathkrishna Swaminathan, Stan Szpakowicz, Jonne Sälevä, Michal Štefánik

Santosh T.y.s.s, Oyvind Tafjord, Ece Takmaz, Aleš Tamchyna, Minghuan Tan, Qingyu Tan, Yun Tang, Zecheng Tang, Zheng Tang, Joshua Tanner, Stephen Eugene Taylor, Hrishikesh Terdalkar, Craig Thorburn, Vanessa Toborek, Evgeniia Tokarchuk, Julien Tourille, Khanh Quoc Tran, Khiem Vinh Tran, Thy Thy Tran, Tornike Tsereteli, Martin Tutek

Can Udomcharoenchaikit, Rheeya Uppaal, Asahi Ushio

Sowmya Vajjala, Jannis Vamvas, Michiel Van Der Meer, Natalia Vanetik, Giorgos Vernikos, Aline Villavicencio, Vijay Viswanathan, MinhDuc Vo, Renato Vukovic

Henning Wachsmuth, David Wadden, Yao Wan, Bang Wang, Bin Wang, Bingqing Wang, Fei Wang, Hai Wang, Jiaan Wang, Jiale Wang, Jiayi Wang, Jue Wang, Lingzhi Wang, Peiyi Wang, Qingyun Wang, Renzhi Wang, Rui Wang, Ruibo Wang, Runhui Wang, Siyuan Wang, Song Wang, Wei Wang, Weiqi Wang, Wen Wang, Xi Wang, Xi Wang, Xiaozhi Wang, Yichen Wang, Yijue Wang, Yiwei Wang, Yu Wang, Yue Wang, Zhaowei Wang, Zhaoyang Wang, Zhiruo Wang, Zilong Wang, Zuhui Wang, Nigel G. Ward, Leon Weber-Genzel, Albert Webson, Penghui Wei, Victor Junqiu Wei, Orion Weller, Matti Wiegmann, Adam Wiemerslage, Rodrigo Wilkens, Steven R. Wilson, Shuly Wintner, Guillaume Wisniewski, Lior Wolf, Tak-Lam Wong, Dina Wonsever, Anne Wu, Chien-Sheng Wu, Hongqiu Wu, Minghao Wu, Qingyang Wu, Qiyu Wu, Taiqiang Wu, Wei Wu, Weiqi Wu, Xiaobao Wu, Xin Wu, Ying Nian Wu

Chunyang Xiao, Jun Xie, Kaige Xie, Tianbao Xie, Yuqiang Xie, Yuqing Xie, Boyan Xu, Jinan Xu, Jitao Xu, Pengyu Xu, Qiongfai Xu, Ruifeng Xu, Wang Xu, Weijie Xu, Xinnuo Xu, Yan Xu, Yi Xu, Yige Xu, Yiheng Xu, Zhichao Xu, Zhiyang Xu, Xiaojun Xue

Tiezheng YU, Shuntaro Yada, Vikas Yadav, Aditya Yadavalli, Jing Nathan Yan, Hitomi Yanaka, Chenghao Yang, Jingfeng Yang, Kejuan Yang, Longfei Yang, Mingming Yang, Nan Yang, Sen Yang, Songlin Yang, Xianjun Yang, Xiaocong Yang, Xiaocui Yang, Xiaoyu Yang, Yinfei Yang, Yue Yang, Zonglin Yang, Bingsheng Yao, Yuekun Yao, Zijun Yao, Zijun Yao, Zonghai Yao, An-

drew Yates, Jiacheng Ye, Jingheng Ye, Qinyuan Ye, Rong Ye, Tong Ye, Zihuiwen Ye, Jinyoung Yeo, Kayo Yin, Qingyu Yin, Yuwei Yin, Sho Yokoi, Bowen Yu, Dian Yu, Yue Yu, Zhou Yu, Cai-xia Yuan, Hongyi Yuan, Lifan Yuan, Yu Yuan

Sina Zarriß, Vicky Zayats, Albin Zehe, Piotr Zelasko, Weihao Zeng, Zhiyuan Zeng, Chryso-  
la Zerva, Deniz Zeyrek, Bohan Zhang, Bowen Zhang, Chen Zhang, Hongyu Zhang, Jing Zhang,  
Jipeng Zhang, Kai Zhang, Kai Zhang, Kai Zhang, Lei Zhang, Linhai Zhang, Liwen Zhang, Mian  
Zhang, Ruiqing Zhang, Ruochen Zhang, Tao Zhang, Tianlin Zhang, Tianyi Zhang, Wei Emma  
Zhang, Wen Zhang, Xiang Zhang, Yanzhe Zhang, Yi Zhang, Yian Zhang, Yichi Zhang, Yiming  
Zhang, Yue Zhang, Yuji Zhang, Yunyi Zhang, Yuwei Zhang, Zhe Zhang, Zhisong Zhang, Zhong  
Zhang, Ziheng Zhang, Zixuan Zhang, Guangxiang Zhao, Jiaxu Zhao, Jie Zhao, Kai Zhao, Mengjie  
Zhao, Qinghua Zhao, Runcong Zhao, Ruochen Zhao, Ruoqing Zhao, Wenting Zhao, Yang Zhao,  
Yilun Zhao, Zhenjie Zhao, Yang Zhong, Giulio Zhou, Li Zhou, Mingyang Zhou, Qingyu Zhou,  
Wangchunshu Zhou, Xin Zhou, Yucheng Zhou, Dawei Zhu, Jian Zhu, Qinglin Zhu, Wanrong  
Zhu, Wanzheng Zhu, Wenhao Zhu, Yaoming Zhu, Yilun Zhu, Zining Zhu, Yuan Zhuang, Yuchen  
Zhuang, Caleb Ziems, Yuexian Zou, Amal Zouaq, Vilém Zouhar, Xinyu Zuo, Maike Züfle

### **Outstanding Reviewers**

Sumeet Agarwal, Sweta Agrawal, Ekaterina Artemova, Forrest Sheng Bao, Gábor Berend, Prabin  
Bhandari, Shruti Bhargava, Sky CH-Wang, Rui Cao, Yixin Cao, Kushal Chawla, Angelica Chen,  
Guanyi Chen, Yulong Chen, Emmanuele Chersoni, Cheng-Han Chiang, David Chiang, Patricia  
Chiril, Iulia Maria Comsa, Souvik Das, Sam Davidson, José G. C. De Souza, Steve DeNeefe,  
Sumanth Doddapaneni, Ritam Dutt, Mohamed Elgaar, Besnik Fetahu, Antske Fokkens, David  
Gaddy, William Gantt, Ankush Garg, Aryo Pradipta Gema, Thamme Gowda, Loïc Grobol, Liane  
Guillou, Namgi Han, Kazuma Hashimoto, Shreya Havaldar, Zhengqi He, Benjamin Heinzerling,  
Christopher Hidey, Eran Hirsch, Zhe Hu, Kung-Hsiang Huang, Taichi Iki, Md Saiful Islam, Labiba  
Jahan, Harsh Jhamtani, Jaap Kamps, Marzena Karpinska, Pei Ke, Frank Keller, Jihyuk Kim, Tracy  
Holloway King, Svetlana Kiritchenko, Fajri Koto, Venelin Kovatchev, Mayank Kulkarni, Jenny  
Kunz, Yucheng LI, Tsz Kin Lam, Ji-Ung Lee, Colin Leong, Tianyi Li, Xudong Lin, Tal Linzen,  
Aiwei Liu, Boyang Liu, Fenglin Liu, Tianyuan Liu, Ziqiao Ma, Piotr Mardziel, Matthew Matero,  
Sandeep Mathias, R. Thomas McCoy, Julia Mendelsohn, Zaiqiao Meng, Yisong Miao, Niloofar  
Mireshghallah, Syrielle Montariol, Luca Moroni, Anjishnu Mukherjee, Diane Napolitano, Thong  
Nguyen, Ansong Ni, Garrett Nicolai, Dmitry Nikolaev, Shu Okabe, Richard Yuanzhe Pang, Youn-  
gja Park, Sachin Pawar, Letian Peng, Francesco Piccinno, Tiago Pimentel, Joan Plepi, Andrei  
Popescu-Belis, Leonardo Ranaldi, Shadi Rezapour, Darcey Riley, Brian Roark, Domenic Rosati,  
Mukund Rungta, Gaurav Sahu, Oscar Sainz, Tatjana Scheffler, Yves Scherrer, David Schlangen,  
Sebastian Schuster, Rico Sennrich, Sofia Serrano, Silvia Severini, Anthony Sicilia, Damien Sileo,  
Yixiao Song, Felix Stahlberg, Julius Steen, Phillip Benjamin Ströbel, Alessandro Suglia, Sara-  
thkrishna Swaminathan, Stan Szpakowicz, Ece Takmaz, Zecheng Tang, Rheeya Uppaal, Jannis  
Vamvas, MinhDuc Vo, David Wadden, Ruibo Wang, Matti Wiegmann, Steven R. Wilson, Anne  
Wu, Hongqiu Wu, Weiqi Wu, Zhiyang Xu, Jing Nathan Yan, Chenghao Yang, Kayo Yin, Qingyu  
Yin, Albin Zehe, Chen Zhang, Jipeng Zhang, Yian Zhang, Yichi Zhang, Yang Zhong, Mingyang  
Zhou, Wanrong Zhu, Caleb Ziems, Vilém Zouhar

**Karen Spärck Jones Award Lecture**  
**Human vs. Generative AI in Content Creation Competition:**  
**Symbiosis or Conflict?**

**Hongning Wang**

Department of Computer Science and Technology, Tsinghua University



**Mon, March 18, 2024 – Time: 09:30 – 10:30 – Room: Radisson**

**Abstract:** The advent of generative AI technology produces transformative impact on the content creation landscape, offering alternative approaches to produce diverse, good-quality content across media, thereby reshaping the ecosystems of online content creation and publishing, but also raising concerns about market over-saturation and the potential marginalization of human creativity. Our recent work introduces a competition model generalized from the Tullock contest to analyze the tension between human creators and generative AI. Our theory and simulations suggest that despite challenges, a stable equilibrium between human and AI-generated content is possible. Our work contributes to understanding the competitive dynamics in the content creation industry, offering insights into the future interplay between human creativity and technological advancements in generative AI.

**Bio:** Dr. Hongning Wang is now an associate professor at the Department of Computer Science and Technology at Tsinghua University. Prior to that, he was the Copenhaver Associate Professor in the Department of Computer Science at the University of Virginia. He received his PhD degree in computer science at the University of Illinois at Champaign-Urbana in 2014. His research generally lies in the intersection among machine learning and information retrieval, with a special focus on sequential decision optimization and computational user modeling. His work has generated over 100 research papers in top venues in data mining and information retrieval areas. He is a recipient of 2016 National Science Foundation CAREER Award, 2020 Google Faculty Research Award, and SIGIR'2019 Best Paper Award.

**Keynote Talk**  
**Quality Data for LLMs: Challenges and Opportunities for  
NLP**

**Hinrich Schütze**

Center for Information and Language Processing, LMU Munich



**Tue, March 19, 2024 – Time: 09:00 – 10:00 – Room: Radisson**

**Abstract:** That the recent LLM breakthroughs are solely due to scaling is a myth. Many difficult research problems had to be solved to make models like GPT4 and Mixtral possible. One of those difficult research problems is data quality. Data quality is a great challenge for NLP researchers with many opportunities for innovation and impact on current generative AI developments. I will focus on two examples in my talk: quality data for training a highly multilingual language model and quality data for instruction tuning.

**Bio:** Hinrich Schuetze is Professor at the Center for Information and Language Processing at LMU Munich. His lab is engaged in research on multilinguality, representation learning and linguistic analysis of NLP models. His research has been funded by NSF, the German National Science Foundation and the European Research Council (ERC Advanced Grant), inter alia. Hinrich is coauthor of two well-known textbooks (Foundations of Statistical Natural Language Processing and Introduction to Information Retrieval), a fellow of HessianAI, ELLIS (the European Laboratory for Learning and Intelligent Systems) and ACL (Association for Computational Linguistics) and (co-)awardee of several best paper awards and the ACL 2023 25-year test of time award.

**Keynote Talk**  
**Prompting is *\*not\** all you need! Or why Structure and Representations still matter in NLP**

**Mirella Lapata**  
School of Informatics, University of Edinburgh



**Wed, March 20, 2024 – Time: 14:45 – 15:45 – Room: Radisson**

**Abstract:** Recent years have witnessed the rise of increasingly larger and more sophisticated language models (LMs) capable of performing every task imaginable, sometimes at (super)human level. In this talk, I will argue that there is still space for specialist models in today’s NLP landscape. Such models can be dramatically more efficient, inclusive, and explainable. I will focus on two examples, opinion summarization and crosslingual semantic parsing and show how these two seemingly unrelated tasks can be addressed by explicitly learning task-specific representations. I will show how such representations can be further structured to allow search and retrieval, evidence-based generation, and cross-lingual alignment. Finally, I will discuss why we need to use LLMs for what they are good at and remove the need for them to do things that can be done much better by smaller models.

**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 Spärck Jones award and a Fellow of the Royal Society of Edinburgh, the ACL, and Academia Europaea. Mirella 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 organizes EMNLP) in 2018. She has been awarded an ERC consolidator grant, a Royal Society Wolfson Research Merit Award, and a UKRI Turing AI World-Leading Researcher Fellowship.

## Table of Contents

<i>French GossipPrompts: Dataset For Prevention of Generating French Gossip Stories By LLMs</i> Msvpj Sathvik, Abhilash Dowpati and Revanth Kumar Narra .....	1
<i>More Discriminative Sentence Embeddings via Semantic Graph Smoothing</i> Chakib Fettal, Lazhar Labiod and Mohamed Nadif .....	8
<i>Multi-Level Attention Aggregation for Language-Agnostic Speaker Replication</i> Yejin Jeon and Gary Lee .....	14
<i>Mitigating Hallucinations and Off-target Machine Translation with Source-Contrastive and Language-Contrastive Decoding</i> Rico Sennrich, Jannis Vamvas and Alireza Mohammadshahi .....	21
<i>Injecting Wiktionary to improve token-level contextual representations using contrastive learning</i> Anna Mosolova, Marie Candito and Carlos Ramisch .....	34
<i>Multilingual Gradient Word-Order Typology from Universal Dependencies</i> Emi Baylor, Esther Ploeger and Johannes Bjerva .....	42
<i>Evaluating the Factuality of Zero-shot Summarizers Across Varied Domains</i> Sanjana Ramprasad, Kundan Krishna, Zachary Chase Lipton and Byron C Wallace .....	50
<i>Leveraging Implicit Feedback from Deployment Data in Dialogue</i> Richard Yuanzhe Pang, Stephen Roller, Kyunghyun Cho, He He and Jason E Weston .....	60
<i>Characterizing the Confidence of Large Language Model-Based Automatic Evaluation Metrics</i> Rickard Stureborg, Dimitris Alikaniotis and Yoshi Suhara .....	76
<i>Equipping Language Models with Tool Use Capability for Tabular Data Analysis in Finance</i> Adrian Theuma and Ehsan Shareghi .....	90
<i>Commonsense-augmented Memory Construction and Management in Long-term Conversations via Context-aware Persona Refinement</i> Hana Kim, Kai Tzu-iunn Ong, Seoyeon Kim, Dongha Lee and Jinyoung Yeo .....	104
<i>Investigating the Potential of Task Arithmetic for Cross-Lingual Transfer</i> Marinela Parović, Ivan Vulić and Anna Korhonen .....	124
<i>On the Benefits of Fine-Grained Loss Truncation: A Case Study on Factuality in Summarization</i> Lorenzo Jaime Yu Flores and Arman Cohan .....	138
<i>Evaluating Unsupervised Argument Aligners via Generation of Conclusions of Structured Scientific Abstracts</i> Yingqiang Gao, Nianlong Gu, Jessica Lam, James Henderson and Richard Hahnloser .....	151
<i>Over-Reasoning and Redundant Calculation of Large Language Models</i> Cheng-Han Chiang and Hung-yi Lee .....	161
<i>Multimodal Fallacy Classification in Political Debates</i> Eleonora Mancini, Federico Ruggeri and Paolo Torrioni .....	170
<i>The Parrot Dilemma: Human-Labeled vs. LLM-augmented Data in Classification Tasks</i> Anders Giovanni Møller, Arianna Pera, Jacob Aarup Dalsgaard and Luca Maria Aiello .....	179

<i>Language Model Sentence Completion with a Parser-Driven Rhetorical Control Method</i> Joshua Zingale and Jugal Kalita .....	193
<i>”It’s how you do things that matters” : Attending to Process to Better Serve Indigenous Communities with Language Technologies</i> Ned Cooper, Courtney Heldreth and Ben Hutchinson .....	204
<i>Source Identification in Abstractive Summarization</i> Yoshi Suhara and Dimitris Alikaniotis.....	212
<i>From Partial to Strictly Incremental Constituent Parsing</i> Ana Ezquerro, Carlos Gómez-Rodríguez and David Vilares .....	225
<i>Predict the Next Word: &lt;Humans exhibit uncertainty in this task and language models _____&gt;</i> Evgenia Ilia and Wilker Aziz .....	234
<i>A Prompt Response to the Demand for Automatic Gender-Neutral Translation</i> Beatrice Savoldi, Andrea Piergentili, Dennis Fucci, Matteo Negri and Luisa Bentivogli.....	256
<i>Interpreting Predictive Probabilities: Model Confidence or Human Label Variation?</i> Joris Baan, Raquel Fernández, Barbara Plank and Wilker Aziz.....	268
<i>Smaller Language Models are Better Zero-shot Machine-Generated Text Detectors</i> Niloofer Mireshghallah, Justus Mattern, Sicun Gao, Reza Shokri and Taylor Berg-Kirkpatrick	278
<i>CharSpan: Utilizing Lexical Similarity to Enable Zero-Shot Machine Translation for Extremely Low-resource Languages</i> Kaushal Kumar Maurya, Rahul Kejriwal, Maunendra Sankar Desarkar and Anoop Kunchukuttan	294
<i>Robust Neural Machine Translation for Abugidas by Glyph Perturbation</i> Hour Kaing, Chenchen Ding, Hideki Tanaka and Masao Utiyama .....	311
<i>Translation Errors Significantly Impact Low-Resource Languages in Cross-Lingual Learning</i> Ashish Sunil Agrawal, Barah Fazili and Preethi Jyothi .....	319
<i>Less is More for Long Document Summary Evaluation by LLMs</i> Yunshu Wu, Hayate Iso, Pouya Pezeshkpour, Nikita Bhutani and Estevam Hruschka .....	330
<i>Leveraging ChatGPT in Pharmacovigilance Event Extraction: An Empirical Study</i> Zhaoyue Sun, Gabriele Pergola, Byron C Wallace and Yulan He .....	344
<i>A Comparative Analysis of Conversational Large Language Models in Knowledge-Based Text Generation</i> Phillip Schneider, Manuel Klettner, Elena Simperl and Florian Matthes .....	358
<i>Extreme Fine-tuning: A Novel and Fast Fine-tuning Approach for Text Classification</i> Boonnithi Jiarmaneepeinit, Thodsaporn Chay-intr, Kotaro Funakoshi and Manabu Okumura .	368
<i>Flow Matching for Conditional Text Generation in a Few Sampling Steps</i> Vincent Tao Hu, Di Wu, Yuki M Asano, Pascal Mettes, Basura Fernando, Björn Ommer and Cees G. M. Snoek .....	380
<i>Corpus-Steered Query Expansion with Large Language Models</i> Yibin Lei, Yu Cao, Tianyi Zhou, Tao Shen and Andrew Yates .....	393
<i>Defending Against Disinformation Attacks in Open-Domain Question Answering</i> Orion Weller, Aleem Khan, Nathaniel Weir, Dawn Lawrie and Benjamin Van Durme .....	402

<i>Sentence Representations via Gaussian Embedding</i>	
Shohei Yoda, Hayato Tsukagoshi, Ryohei Sasano and Koichi Takeda . . . . .	418
<i>STORiCo: Storytelling TTS for Hindi with Character Voice Modulation</i>	
Pavan Kalyan Tankala, Preethi Jyothi, Preeti Rao and Pushpak Bhattacharyya . . . . .	426
<i>Rethinking Loss Functions for Fact Verification</i>	
Yuta Mukobara, Yutaro Shigeto and Masashi Shimbo . . . . .	432
<i>A Dataset for Metaphor Detection in Early Medieval Hebrew Poetry</i>	
Michael Toker, Oren Mishali, Ophir Münz-Manor, Benny Kimelfeld and Yonatan Belinkov . .	443
<i>SOCIALITE-LLAMA: An Instruction-Tuned Model for Social Scientific Tasks</i>	
Gourab Dey, Adithya V Ganesan, Yash Kumar Lal, Manal Shah, Shreyashee Sinha, Matthew Matero, Salvatore Giorgi, Vivek Kulkarni and H. Schwartz . . . . .	454
<i>Pre-Training Methods for Question Reranking</i>	
Stefano Campese, Ivano Lauriola and Alessandro Moschitti . . . . .	469
<i>Dynamic Masking Rate Schedules for MLM Pretraining</i>	
Zachary Ankner, Naomi Saphra, Davis Blalock, Jonathan Frankle and Matthew L Leavitt . . .	477