

ACL 2022

**The 60th Annual Meeting of the Association for  
Computational Linguistics**

**Proceedings of the Conference, Vol. 1 (Long Papers)**

May 22-27, 2022

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## Message from the General Chair

Welcome to ACL 2022, the 60th Annual Meeting of the Association for Computational Linguistics! The conference will be held in Dublin, the capital of Ireland, on May 22–27, 2022.

ACL 2022 will be a hybrid conference. After two fully virtual editions, ACL 2020 and ACL 2021, due to the covid-19 pandemic, this year we are gradually coming back to normality, estimating, at the moment of writing this message, that about 50% of the registered participants will be able to attend the conference in-person, enjoying the atmosphere of the CCD congress center, the social events of the conference, and the many opportunities in Dublin. On the other side, virtual attendees will have the possibility to interact almost like they were in Dublin, thanks to a sophisticated virtual conference platform.

There are few important innovations this year. The most relevant is that ACL 2022 adopted a new reviewing process, based on “rolling review” (ARR), with the goal of coordinating and making more efficient the paper reviews of the ACL conferences. This initiative was shared with NAACL 2022, resulting in a coordinated effort. As a side effect of moving to ARR, we have been working on a new version of the software, called ACLPUB2, used to produce both the conference proceedings and the conference schedule. I would like to thank all the people who contributed to those achievements. Finally, this year we celebrate the 60th anniversary of the ACL conference. Thanks to the enthusiastic contributions of many organizations, coordinated by the Diversity and Inclusion co-chairs, we are preparing a very special initiative for our community, which, at the time of writing this message, is still secret and that will be disclosed during the opening of the conference.

I was very lucky to work together with three fantastic Program Chairs: Preslav Nakov, Smaranda Muresan and Aline Villavicencio. I could not thank you more for the dedication and the capacity with which you have organized a very exciting scientific program and for the help in all the phases of the conference organization.

Thanks to the local organizers in Dublin, Andy Way and John Kelleher, and to the PCO, who managed the local organization in a period in which we have had very few certainties, and many more uncertainties.

We are extremely grateful to all sponsors for their continuing and generous support to help our conferences be very successful. Thank you to Chris Callison-Burch, the ACL Sponsorship Director, for managing the relations between the sponsors and ACL 2022.

I am also very grateful to the chairs of the previous years’ conferences, who were always ready to help and to provide advice, contributing to the transmission, from year to year, of all the know-how and collective memory. Thanks to all the members of The ACL Executive Committee, they were always supportive, particularly when feedback on delicate issues was needed.

Many thanks to the senior area chairs, the area chairs, the reviewers, our workshop organizers, our tutorial instructors, the authors and presenters of papers, and the invited speakers.

ACL requires a long process, involving a large team of committed people. It is an honor for me to have coordinated such a team of talented people, who kindly volunteered their time to make this conference possible. I would like to thank the members of the organizing committee for their dedication and hard work, often under a tight schedule:

- Workshop Co-Chairs: Elena Cabrio, Sujian Li, Mausam;
- Tutorial Co-Chairs: Naoaki Okazaki, Yves Scherrer, Marcos Zampieri;
- Demo Co-Chairs: Valerio Basile, Zornitsa Kozareva, Sanja Štajner;
- Student Research Workshop Co-Chairs: Samuel Louvan, Brielen Madureira, Andrea Madotto;

- SRW Faculty Advisors: Cecile Paris, Siva Reddy, German Rigau;
- Publication Co-Chairs (also publication co-chairs for NAACL 2022): Danilo Croce, Ryan Cotterell, Jordan Zhang;
- Conference Handbook Chair: Marco Polignano;
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- Student Volunteer Coordinators: Filip Klubicka, Vasudevan Nedumpozhimana, Guodong Xie, Pintu Lohar;
- Internal Communications Chair: Marceley Boito Zanon.

Let me deserve a special thanks to Priscilla Rasmussen. She has been the pillar not only of this year's ACL, but of the ACL conferences for many years. She has offered her invaluable experience to the organizing committee, and her presence has always given us a pleasant sense of security.

Finally, I would like to thank all the participants, both in-person and virtual, who will be the main actors from May 22 to May 27, 2022. I am convinced that we will experience a fantastic conference, scientifically exciting and full of fond memories.

Welcome and hope you all enjoy the conference!

Bernardo Magnini (FBK, Italy)  
ACL 2022 General Chair

## Message from the Program Chairs

Welcome to the 60th Annual Meeting of the Association for Computational Linguistics (ACL 2022). ACL 2022 has a special historical significance, as this is the 60th Anniversary edition. It is also the first hybrid ACL conference after two years of a fully virtual format for ACL in 2020 and 2021 due to the COVID-19 pandemic. Finally, it is the first \*ACL conference to fully embrace the ACL Rolling Review (ARR) as a reviewing process. Below, we discuss some of these changes and we highlight the exciting program that we have put together with the help from our community.

### Using ARR for Reviewing

In coordination with the NAACL 2022 team and the ACL executive committee, we decided to fully adopt the ACL Rolling Review (ARR) as the only reviewing platform for ACL 2022. ARR is a new review system for \*ACL conferences, where reviewing and acceptance of papers to publication venues is done in a two-step process: (i) centralized rolling review via ARR, and (ii) commitment to a publication venue, e.g., ACL 2022. The purpose of the ACL Rolling Review is to improve the efficiency and the turnaround of reviewing in \*ACL conferences while keeping diversity (geographic and otherwise) and editorial freedom.

As ACL 2022 is the first conference to fully adopt the ARR review process, we worked very closely with ARR and we coordinated our efforts with the NAACL 2022 PC chairs. In particular, given the short distance between ACL 2022 and NAACL 2022, we allowed authors to commit their papers to ACL 2022 and simultaneously to submit a revision to ARR in January, which were eligible for NAACL 2022. We also joined ARR as Guest Editors-in-Chief (EiCs) to help with the September–November submissions to ARR, which primarily targeted ACL 2022. We worked together to integrate ARR and some of the conference workflows to ensure scaling up, and to maintain the quality and the timely processing of the submissions for November, and thus to guarantee that all papers submitted by the November 15, 2021 ARR deadline could be considered for ACL 2022 if the authors decided to commit them. This required making sure we had all reviews and meta-reviews ready in time, which we managed to achieve thanks to the combined efforts of the ARR and the ACL 2022 teams. We would also like to note that this is a community effort, and we are grateful for the support of the authors, the reviewers, the Action Editors (AEs), and the Senior Area Chairs (SACs), who have been constructively engaging and helping with ARR and ACL 2022.

### Committing to ACL 2022

The commitment form for ACL 2022 asked the authors to provide a link to their paper in ARR: we asked for a link to the latest version of the paper that had reviews and a meta-review. The authors also needed to select an area (including the Special Theme area) they were submitting their paper to (this was needed as ACL 2022 had areas, while ARR did not). Finally, the authors were allowed to submit optional comments to the ACL 2022 Senior Area Chairs (SACs). Note that these comments were only visible to the SACs, and they were not sent to the reviewers or to the Action Editors: the rationale was that responding to reviewers and Action Editors should be handled in a response letter if the authors decided to do a resubmission in ARR, which is a completely different process than committing a paper to ACL 2022. These comments to the SACs were designed mainly to raise concerns about objective misunderstandings by the reviewers and/or by the Action Editor about the technical aspect of the paper that the authors believed might help the SACs in their decision-making process.

**Areas** While ARR did not have areas, ACL 2022 did: it had 23 areas, including the 22 areas from ACL 2021 plus our Special Theme. Our special theme was on “*Language Diversity: from Low-Resource to Endangered Languages*,” to commemorate the 60th anniversary of ACL with the goal of reflecting and

stimulating a discussion about how advances in computational linguistics and natural language processing can be used to promote language diversity from low-resource to endangered languages. We invited papers that discuss and reflect on the “role of the speech and language technologies in sustaining language use” (Bird, 2020) for the large variety of world languages with focus on under-resourced, indigenous, and/or endangered languages. We were interested in the challenges for developing and scaling up the current NLP technologies for the rich diversity of human languages and in the ethical, cultural, and policy implications of such technologies for local communities. We also have a best Theme paper award category.

## Acceptance to ACL 2022

As ACL 2022 submissions in ARR, we count all papers from September, October, and November, which we advertised as ACL 2022 months, after removing all re-submissions and also nine papers that selected NAACL 2022 as a preferred venue (a total of 3,360 papers) + the papers from the May–August period that were actually committed to ACL 2022 and that were not resubmissions (a total of 18 papers), for a total of 3,378 papers.

This number is on par with the number of submissions to ACL 2021, which received 3,350 submissions. Subsequently, 1,918 papers were committed to ACL 2022 (i.e., 57%). After the review process, 701 papers (604 long and 97 short) were accepted into the main conference.

## Acceptance Rates for the Main Conference

The quality of a conference is often perceived based on the acceptance rate of the papers submitted there, and thus it is important to have an acceptance rate that adequately represents the difficulty of publishing a paper in the conference. Given the adoption of ARR, it is also important to allow for consistency across various conferences. Thus, ACL 2022 (and NAACL 2022) adopted the following two ways of calculating the acceptance rates:

- (a) *(Number of accepted papers at ACL 2022) / (Number of papers that selected ACL 2022 as the preferred venue in ARR or were committed to ACL 2022)*. For ACL 2022, for the denominator we consider the 3,378 papers as explained above. Thus, the acceptance rate is  $701 / 3,378 = 20.75\%$  for the Main conference.
- (b) *(Number of accepted papers at ACL 2022) / (Number of papers committed to ACL 2022)*. For the denominator, we had 1,918 papers committed to ACL 2022, and thus, the acceptance rate is  $701 / 1,918 = 36.54\%$  for the Main conference.

Note that option (a) is closer to the way the acceptance rate was computed at previous \*ACL conferences, where submitting and committing a paper was done in one step and papers were rarely withdrawn after the reviews, the meta-reviews, and the corresponding scores were released. However, one issue with this option for ACL 2022 was that indicating a preferred venue was only enabled starting with the October ARR submissions, and it was not available for earlier months. As mentioned above, we removed a small number of papers from our denominator that selected NAACL 2022 as a preferred venue in October and November (a total of 9 papers) and we considered the ARR submissions only for the months of September, October, and November, as these months were advertised in our CFP, plus any papers that were committed to ACL 2022 from earlier months (May–July) and which were also not resubmissions. Option (b) yields a higher “acceptance rate”, as many authors with low reviewing scores chose not to commit their paper to ACL 2022.

## Best Paper Awards

From the committed ACL 2022 papers, we selected 32 papers as candidates for the following Best Paper awards, based on nominations by the Senior Area Chairs: Best Research Paper, Best Special Theme



Paper, Best Resource Paper, and Best Linguistic Insight Paper. These papers were assessed by the Best Paper Award Committee. The selected best papers will be presented in a dedicated plenary session for Best Paper Awards on May 24, 2022.

## Findings of ACL 2022

Given the success of the Findings at EMNLP 2020 and 2021 and ACL-IJCNLP 2021, we also have Findings of ACL 2022 papers, which are papers that were not accepted for publication in the main conference, but nonetheless were assessed by the Program Committee as solid work with sufficient substance, quality, and novelty. A total of 361 papers were offered to be included in the Findings of ACL 2022. Given the two ways of computing acceptance rates described above, this results in a 10.68% acceptance rate in option (a), and 19.82% in option (b). Out of the 361 papers, 30 papers declined the offer, leading to 331 papers to be published in the Findings of ACL 2022. In order to increase the visibility of the Finding of ACL 2022 papers, we offered the authors of these 331 papers the possibility to present their work as a poster at ACL 2022, in addition to making a 6-minute or a 3-minute video to be included in the virtual conference site (for long and for short papers, respectively). The authors of 305 of the 331 papers accepted our invitation to present their work as a poster at ACL 2022.

## TACL and Computational Linguistics

Continuing the tradition from previous years, ACL 2022 also features 43 articles that were published at the Transactions of the Association for Computational Linguistics (TACL) and 8 papers from the Computational Linguistics journal.

## Keynote and Invited Speakers

Another highlight of our program are the keynotes, which we run in three different formats:

- **a keynote talk** by Angela Friederici (Max Planck Institute for Human Cognitive and Brain Sciences) on “*Language in the Human Brain*”;
- **a keynote fire-side chat** on “*The Trajectory of ACL and the Next 60 years*” with Barbara Grosz (Harvard University) and Yejin Choi (University of Washington and Allen Institute for Artificial Intelligence), moderated by Rada Mihalcea (University of Michigan);
- **a keynote panel** on “How can we support linguistic diversity?” led by Steven Bird (Charles Darwin University), with panelists representing a variety of world languages, including (currently confirmed) Teresa Lynn (Irish), Robbie Jimerson (Seneca), Heather Long (Creole languages), and Manuel Mager (Wixaritari).

We further had two additional invited talk initiatives:

- **Spotlight Talks by Young Research Stars (STIRS)** by Eunsol Choi (University of Texas at Austin), Ryan Cotterell (ETH Zurich), Sebastian Ruder (Google, London), Swabha Swayamdipta (Allen Institute for AI), and Diyi Yang (Georgia Tech);
- **Next Big Ideas Talks** by Marco Baroni (Pompeu Fabra University), Eduard Hovy (The University of Melbourne and Carnegie Mellon University), Heng Ji (UIUC), Mirella Lapata (University of Edinburgh), Hang Li (Bytedance Technology), Dan Roth (University of Pennsylvania and Amazon), and Tamar Solorio (University of Houston).

## Thank You

ACL 2022 is the result of a collaborative effort and a supportive community, and we want to acknowledge the efforts of so many people who have made significant efforts into the organization of ACL 2022! First of all, we would like to thank our Program Committee (the full list of names is quite long and it is included in the Program Committee pages of the Proceedings):

- Our awesome 82 Senior Area Chairs who were instrumental in every aspect of the review process, from liaising with ARR, to supporting the implementation of a two-stage reviewing system, recommending Action Editors and reviewers, working on paper acceptance, and nomination of best papers and outstanding reviewers. For all of them, this involved familiarizing themselves with a new protocol to accommodate the integration of ARR reviews and a new system, and for many of them, the scope of their responsibilities was equivalent to chairing a small conference.
- The 363 ARR Action Editors (from the June–November ARR cycles), who had the role of ACL 2022 Area Chairs interacting with reviewers, leading paper review discussions, and writing meta-reviews.
- The 2,323 ARR reviewers (from the June–November ARR cycles), who contributed for the ACL 2022 reviewing cycles, providing valuable feedback to the authors.
- The emergency ARR Action Editors and reviewers, who provided their support at the last minute to ensure a timely reviewing process.
- The amazing ARR team, who collaborated in the challenge of managing and implementing the ARR reviewing needed for the scale of ACL 2022. In particular, we acknowledge Amanda Stent and Goran Glavaš as Guest ARR Editors-in-Chief for ACL 2022, Graham Neubig as Guest ARR Chief Technical Officer for ACL 2022, and Sara Goggi as Guest ARR Editorial Manager for ACL 2022.

ACL 2022 counted on the contributions of many wonderful committees, including:

- Our Best Paper Selection Committee, who selected the best papers and the outstanding papers: Tim Baldwin, Kathleen McKeown, David Chiang, Min-Yen Kan, and Taro Watanabe.
- Our Ethics Advisory Committee, chaired by Christiane Fellbaum and Su Lin Blodgett, for their hard work to ensure that all the accepted papers addressed the ethical issues appropriately, under a very tight schedule and on a new platform.
- Our amazing Publication Chair Danilo Croce, our Handbook Chair Marco Polignano, the Technical OpenReview Chair Rodrigo Wilkens, and the Scheduler Chair Jordan Zhang, who jointly with the NAACL 2022 Publication Chair, Ryan Cotterell, made an enormous contribution to the community by implementing the integration scripts for generating the proceedings, the handbook and the schedule from the OpenReview platform.
- Our Publicity Chairs Isabelle Augenstein, Emmanuele Chersoni, Diana Maynard, Soujanya Poria, and Joel Tetreault, for their work on managing the communications on social media platforms.
- The Internal Communications Chair Marcely Boito Zanon for streamlining the processes.
- The wonderful Technical OpenReview Chair Rodrigo Wilkens, who went above and beyond to ensure that the typical ACL conference functionalities were translated to a new environment.

We would also like to thank many people who helped us with various software used for the conference:

- The ARR Tech team, in particular Sebastin Santy and Yoshitomo Matsubara, who served as Guest ARR Tech Team for ACL 2022.

- The OpenReview team, in particular Nadia L’Bahy, Celeste Martinez Gomez, and Melisa Bok, who helped to implement the integration of ARR as a reviewing platform for ACL 2022.
- The whole Underline team, in particular Sol Rosenberg, Jernej Masnec, Damira Mršić, and Mateo Antonic, who created a virtual site for the conference.

As Program chairs, we had to deal with many tasks, including handling new protocols and situations and a new conference management environment. We would not be able to complete these tasks without the advice from our colleagues, including

- Our fantastic General Chair Bernardo Magnini, who provided invaluable support and feedback throughout the whole process, including collaborating on the efforts to take on the challenge of reengineering the conference reviewing processes and pipeline.
- The Program Co-Chairs of NAACL 2022 Marine Carpuat, Marie-Catherine de Marneffe, and Ivan Vladimir Meza Ruiz, and the NAACL 2022 General Chair, Dan Roth, for collaborating in the challenge of coordinated adoption of ARR reviewing in a full scale for ACL 2022 and NAACL 2022.
- The Program Co-Chairs of previous editions of \*ACL conferences, in particular the ACL-IJCNLP 2021 PC chairs Roberto Navigli, Fei Xia, and Wenjie Li, as well as the EMNLP 2021 PC chairs Lucia Specia, Scott Wen-tau Yih, and Xuanjing Huang for providing amazing guidance and support, and sharing their experience and answering our many questions, often on short notice.
- The ACL Executive Committee, especially Tim Baldwin (the ACL President), Rada Mihalcea (the ACL Past President), Shiqi Zhao (Secretary), Priscilla Rasmussen (Business Manager), and the members of the ACL executive committee for providing invaluable feedback and for helping us sort through various issues.
- The Computational Linguistics Editor-in-Chief Hwee Tou Ng, the TACL Editors-in-Chief Ani Nenkova and Brian Roark, and the TACL Editorial Assistant Cindy Robinson, for coordinating the Computational Linguistics and the TACL presentations at ACL 2022.

We would also like to thank all the authors who submitted/committed their work to ACL 2022. Although we were only able to accept a small percentage of the submissions, your hard work makes this conference exciting and our community strong. Our huge thanks goes to the \*ACL communities for the kind and patient support during a year of major changes in our submission and reviewing processes.

Last, but not least, we thank our students, interns, postdocs, colleagues, and families for being so understanding and supportive during this intense year, and especially when we were swamped by countless conference deadlines and meetings. Our deepest gratitude is to all of you. We hope you will enjoy this 60th Anniversary edition of ACL.

Smaranda Muresan (Columbia University and Amazon AWS AI Labs, USA)  
 Preslav Nakov (Qatar Computing Research Institute, HBKU)  
 Aline Villavicencio (University of Sheffield, UK)

ACL 2022 Program Committee Co-Chairs

## Message from the Local Chairs

Back in March 2020, just after the first COVID-19 lockdown, we submitted our bid for Dublin to host ACL 2022, conference that you are currently attending. In November 2020, we learned that our bid had been successful, which we were of course delighted to hear. Of course, at that stage – and at many points in between – we have wondered whether we would be able to meet face-to-face at all, and it is great that we are able to host you in the wonderful city of Dublin where we are privileged to live, as well as accommodating many of you online.

ACL is an opportunity to welcome not just our European friends and colleagues, but also those from farther afield. Ireland punches above its weight in the areas of NLP and Machine Learning, principally through the SFI-funded €100 million ADAPT Centre for Digital Content Technology, which comprises experts from 4 local Dublin universities as well as 4 further universities from across the country in a range of disciplines in AI. We have internationally renowned groups in machine translation, information retrieval, speech technology, parsing and grammar Induction, among others, so we believe it is appropriate that ACL is being held in our country for the first time. We are of course grateful to everyone who submitted a paper; whether your work was selected for presentation or not, if no-one had submitted, we wouldn't have had a conference. For those of you whose work was selected for presentation, many thanks for coming to Dublin, or for presenting online.

Along the way, we have been helped greatly by the General Chair Bernardo Magnini, and by Priscilla Rasmussen and others from the ACL executive team, to whom we are extremely thankful. However, by far the biggest thanks are due to Greg Carew and his team in Abbey Conference and Events for their professional support of the conference. You will have met them at registration, and they are available throughout the event to ensure your needs are met. We have been engaging with them for 2 years now on ACL, and for longer as they helped Andy host the MT Summit in 2019. We could not have made a better choice of PCO to assist us with all the requirements involved in hosting the best-regarded conference in our area. This has been a true partnership that has made this journey an enjoyable one.

We are also extremely grateful to Fáilte Ireland for their extremely generous support of this conference, and to our PostDocs Guodong Xie & Pintu Lohar (with Andy at DCU), and Vasudevan Nedumpozhimana & Filip Klubička (with John at TUD) for their huge efforts to recruit and manage the small army of student volunteers. Finally, we really hope that you all enjoy the conference, that you benefit from the excellent programme that has been assembled, and that you go away from here having made new friends. We are fortunate indeed that many of our very best friends are in the computational linguistics community, and we will try our very best to meet as many of you as possible during the event.

Andy Way (Dublin City University, Ireland)  
John Kelleher (TU Dublin, Ireland)

Local Chairs, ACL 2022

# Organizing Committee

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David Chiang, University of Notre Dame, USA

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Taro Watanabe, Nara Institute of Science and Technology, Japan

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Priscilla Rasmussen, ACL

**Conference Registration**

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Terah Shaffer, Yes Events

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# Program Committee

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David Traum, University of Southern California  
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Malvina Nissim, University of Groningen

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Chenghua Lin, University of Sheffield  
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Marti Hearst, University of California Berkeley  
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Karin Verspoor, Royal Melbourne Institute of Technology  
Jimmy Lin, University of Waterloo  
Horacio Saggion, Universitat Pompeu Fabra  
Wei Gao, Singapore Management University  
Beata Beigman Klebanov, Educational Testing Service

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Alexis Palmer, University of Colorado, Boulder

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# Keynote Talk: Language in the Human Brain

Angela D. Friederici

Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

**Abstract:** Language is considered to be a uniquely human faculty. The different aspects of the language system, namely phonology, semantics and syntax have long been discussed with respect to their species-specificity. Syntax as the ability to process hierarchical structures appears to be specific to humans. The available neuroscientific data allow us to define the functional language network which involves Broca's area in the inferior frontal cortex and the posterior superior temporal cortex. Within this network, the posterior part of Broca's area plays a special role as it supports the processing of hierarchical syntactic structures, in particular the linguistic computation Merge which is at the root of every language. This part of Broca's area is connected to the posterior temporal cortex via a dorsally located white matter fiber tract hereby providing to structural basis for the functional interplay of these regions. It has been shown that the maturation of this white matter pathway is directly correlated with the ability to process syntactically complex sentences during human development. Moreover, this dorsal pathway appears to be weak in the prelinguistic infant and in the non-human primate. These findings suggest that the dorsal pathway plays a crucial role in the emergence of syntax in human language.

**Bio:** Angela D. Friederici is a cognitive neuroscientist in the domain of language. She is director at the Max Planck Institute for Human Cognitive and Brain Sciences (MPI CBS) in Leipzig, Germany and the Founding director of this institution founded in 1994.

She graduated in linguistics and psychology at the University of Bonn (Germany) and spent a postdoctoral year at MIT (USA). She was a research fellow at the Max Planck Institute in Nijmegen (NL), at the University Rene Descartes, Paris (F) and University of California, San Diego (USA). Prior to joining the Max Planck Society as a director, she was professor for Cognitive Sciences at the Free University Berlin. Friederici is honorary professor at the University of Leipzig (Psychology), the University of Potsdam (Linguistics) and the Charité Universitätsmedizin Berlin (Neurology) and she holds a Doctor honoris causa from the University of Mons, Belgium. Between 2014 and 2020 she was Vice President for the Human Sciences Section of the Max Planck Society.

Her main field of research is the neurobiology of language. She published about 500 scientific papers on this topic in major international journals. She received a number of scientific awards: 1987 Heisenberg Fellowship of the German Research Foundation, 1990 Alfried Krupp Award of the Alfried Krupp von Bohlen and Halbach-Stiftung, 1997 Gottfried Wilhelm Leibniz Prize of the German Research Foundation, and 2011 Carl Friedrich Gauss Medal of the Brunswick Scientific Society. She is member of the Berlin-Brandenburg Academy of Sciences and Humanities, member of the national German Academy of Sciences 'Leopoldina' and member of the Academia Europaea.



# Keynote Fire-Side Chat with Barbara Grosz and Yejin Choi on “The Trajectory of ACL and the Next 60 Years”

For the 60th Anniversary of ACL 2022, we will feature a keynote fire-side chat on “*The Trajectory of ACL and the Next 60 years*” with two keynote talks in dialogue: Barbara Grosz and Yejin Choi followed by a moderated discussion lead by Rada Mihalcea.

## Remarks on What the Past Can Tell the Future

**Barbara J. Grosz**  
Harvard University SEAS

**Abstract:** Research in computational linguistics and spoken language systems has made astonishing progress in the last decade. Even so, the challenge remains of achieving human-level fluent dialogue conversational capabilities beyond narrowly defined domains and tasks. Findings of earlier ACL times research on dialogue hold some lessons for breaking the “dialogue boundary” in computational linguistics yet again, if ways can be found to integrate them into deep-learning language models. These models raise some of the most serious ethical challenges of current computing research and technologies. Expanding their powers in this direction will raise more. In discussing these topics, I will raise questions for Prof. Choi and our subsequent discussion.

**Bio:** Barbara J. Grosz is Higgins Research Professor of Natural Sciences in the Paulson School of Engineering and Applied Sciences at Harvard University. Her contributions to AI include fundamental advances in natural-language dialogue processing and in theories of multi-agent collaboration as well as innovative uses of models developed in this research to improve healthcare coordination and science education. She co-founded Harvard’s Embedded EthiCS program, which integrates teaching of ethical reasoning into core computer science courses. A member of the National Academy of Engineering, the American Philosophical Society, and the American Academy of Arts and Sciences, she is a fellow of several scientific societies and recipient of the 2009 ACM/AAAI Allen Newell Award, the 2015 IJ-CAI Award for Research Excellence, and the 2017 Association for Computational Linguistics Lifetime Achievement Award.

## 2082: An ACL Odyssey The Dark Matter of Intelligence and Language

**Yejin Choi**  
Paul G. Allen School of Computer Science & Engineering at the University of Washington

**Abstract:** In this talk, I will wander around reflections on the past of ACL and speculations on the future of ACL. This talk will be purposefully imaginative and accidentally controversial, by emphasizing on the importance of deciphering the dark matter of intelligence, by arguing for embracing all the ambiguous aspects of language at all pipelines of language processing, by highlighting the counterintuitive continuum across language, knowledge, and reasoning, and by pitching the renewed importance of formalisms, algorithms, and structural inferences in the modern deep learning era. Looking back, at the 50<sup>th</sup> ACL, I couldn’t possibly imagine that I would be one day giving this very talk. For that reason, I will also share my personal anecdotes on the lasting inspirations from the previous lifetime achievement award speeches, how I believe talent is made, not born, and the implication of that belief for promoting diversity and equity.

**Bio:** Yejin Choi is Brett Helsen Professor at the Paul G. Allen School of Computer Science & Engineering at the University of Washington and a senior research manager at AI2 overseeing the project Mosaic. Her research investigates commonsense knowledge and reasoning, neuro-symbolic integration, neural language generation and degeneration, multimodal representation learning, and AI for social good. She is a co-recipient of the ACL Test of Time award in 2021, the CVPR Longuet-Higgins Prize in 2021, a NeurIPS Outstanding Paper Award in 2021, the AAAI Outstanding Paper Award in 2020, the Borg Early Career Award in 2018, the inaugural Alexa Prize Challenge in 2017, IEEE AI's 10 to Watch in 2016, and the ICCV Marr Prize in 2013.

# Keynote Panel: Supporting Linguistic Diversity

**Chair:** Steven Bird, Charles Darwin University

**Panelists and languages represented:**

- Robert Jimerson, Rochester Institute of Technology (Seneca, USA)
- Fajri Koto, The University of Melbourne (Minangkabau, Indonesia)
- Heather Lent, University of Copenhagen (Creole languages)
- Teresa Lynn, Dublin City University (Irish)
- Manuel Mager, University of Stuttgart (Wixaritari, Mexico)
- Perez Ogayo, Carnegie Mellon University (Luo and Kiswahili, Kenya)

How do the tools and techniques of computational linguistics serve the full diversity of the world’s languages? In particular, how do they serve the people who are still speaking thousands of local languages, often in highly multilingual, post-colonial situations? This 60th meeting of the ACL features a special theme track on language diversity with the goal of “reflecting and stimulating discussion about how the advances in computational linguistics and natural language processing can be used for promoting language diversity”. This keynote talk-panel will showcase the special theme and identify key learnings from the conference. We hope this session will help to shape the future agenda for speech and language technologies in support of global linguistic diversity. The session will be organised around a series of questions under three headings.

**Diverse Contexts.** What is the situation of local languages where panel members are working? Are there multiple languages with distinct functions and ideologies? What are the local aspirations for the future of these languages. How are people advocating for language technology on the ground? How did the work begin? What does success look like?

**Understanding Risks.** Do the people who provide language data fully understand the ways their data might be used in future, including ways that might not be in their interest? What benefit are local participants promised in return for their participation, and do they actually receive these benefits? Are there harms that come with language standardisation? What principles of doing no harm can we adopt?

**New Challenges.** How can we provide benefits of text technologies without assuming language standardisation, official orthography, and monolingual usage? When working with local communities, do we always require data in exchange for technologies, or is a non-extractive NLP possible? How do we decolonise speech and language technology? At the beginning of the International Decade of Indigenous Languages 2022–2032, we ask: how do we respond as a community, and how can our field be more accessible to indigenous participation?

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