

AAACL-IJCNLP 2022

**The 2nd Conference of the Asia-Pacific Chapter of the
Association for Computational Linguistics and
the 12th International Joint Conference on
Natural Language Processing**

Proceedings of the Conference (Volume 1: Long Papers)

November 20-23, 2022

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Preface by the General Chair

Welcome to ACL-IJCNLP 2022, the 2nd Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics and the 12th International Joint Conference on Natural Language Processing! The conference will be held online on November 20-23, 2022.

ACL-IJCNLP 2022 was originally scheduled to take place in Taipei, Taiwan. We had a discussion with ACL executive board early this year whether to hold the conference entirely in the virtual mode due to the strict COVID quarantine rule imposed by the Taiwan government. We later decided to wait until the mid of June to re-evaluate the situation. In early June, the Central Epidemic Command Center in Taiwan announced that starting from 15 June 2022, the mandatory quarantine period for international arrivals in Taiwan would be reduced from 7 to 3 days. After a discussion with both the Program Chairs and the Local Organization Chair, we decided to wait further until August to see if we could have a hybrid conference in the hope that Taiwan will open its border fully in November. But we eventually made a difficult decision to hold the conference entirely online at mid of August as the quarantine rule and the travel ban imposed on foreign nationals were still in place in Taiwan. This was rather disappointed. Nevertheless, our Program Chairs have put together a very interesting conference program. I hope to see many of you joining our conference online.

ACL-IJCNLP 2022 adopted a dual paper submission system that authors can choose to submit their papers to the "ACL Rolling Review (ARR)" or submit to the softconf submission site in a conventional way. For the latter, authors had a chance to respond to reviewers' comments. One innovation our Program Chairs introduced is to allow authors to run additional experiments and upload revised papers during the rebuttal period to address reviewers' comments. This required additional efforts from our reviewers, area chairs and senior area chairs to check the revised submissions. But it gave authors better opportunities to address reviewers' criticism. Another innovation is to introduce poster lightning talks in the main conference. We hope these efforts will be followed in future conferences.

ACL-IJCNLP 2022 would not be possible without the contribution from a large number of volunteers who are willing to spend tremendous time and effort. These include the members of our organisation committee and various people from the ACL community. In particular, I would like to thank:

- the three Program Co-Chairs, Heng Ji, Sujian Li, and Yang Liu, who managed the whole conference paper submission and review process, and assembled the conference program with new initiatives such as a debate on "*Is there more to NLP than Deep Learning?*" and the "7 NLP Dissertation Topics for Next 7 Years";
- the Local Organisation Chair, Chia-Hui Chang, who was in charge of venue booking when we initially planned for a hybrid conference and coordinated the setup of a registration site. She was supported by a great local organisation team, including the Financial Chair, Lun-Wei Ku, the Local Arrangement Chair, Kuan-Yu (Menphis) Chen, the Online Conference Coordinator, Richard Tzong-Han Tsai, and the Registration Chair, Hsiu-Min Chuang;
- the Publication Co-Chairs, Min-Yuh Day, Hen-Hsen Huang, and Jheng-Long Wu, who prepared the instruction for proceedings compilation and coordinated with our workshop/tutorial/demo/student research workshop chairs to assemble all papers into our conference proceedings;
- the Workshop Co-chairs, Soujanya Poria and Chenghua Lin, who selected 5 workshops for the conference and ensured all the workshops could successfully run virtually;
- the Tutorial Co-Chairs, Miguel A. Alonso and Zhongyu Wei, who selected 6 tutorials to be presented at the conference and prepared the tutorial abstract proceedings;

- the Demonstration Co-Chairs, Wray Buntine and Maria Liakata, who managed the demo paper submission and review process;
- the Special Theme Co-Chairs, Monab Diab and Isabelle Augenstein, who handled paper submissions to the Special Theme on Fairness in Natural Language Processing;
- the Student Research Workshop (SRW) Co-Chairs, Hanqi Yan and Zonghan Yang, who organised the student workshop under the guidance of our SRW Faculty Co-Advisors, Sebastian Ruder and Xiaojun Wan;
- the Publicity Co-chairs, Pengfei Liu, Gabriele Pergola, and Ruifeng Xu, who communicated the information about the conference to the community using various social media channels;
- the Website Chair, Miguel Arana Catania and Yung-Chun Chang, who ensured that the ACL-IJCNLP 2022 website contains all up-to-date information;
- the Diversity & Inclusion (D&I) Chairs, Ruihong Huang and Jing Li, who have worked tirelessly to make ACL-IJCNLP 2022 as welcoming and inclusive as possible for all participants. They were supported by the D&I committee members, Yuji Zhang, Yuanyuan Lei, and Ayesha Qamar;
- the Sponsorship Coordinators, Hiroya Takamura, Wen-Hsiang Lu, and Deyi Xiong, who reached out to institutions and corporations to collect funds to support our conference;
- the Communication Chairs, Zheng Fang, Jiazheng Li, and Xingwei Tan, who stepped in with a short notice to help Program Co-Chairs deal with a large number of email enquiries;
- Priscilla Rasmussen, who stayed as a consultant for ACL, and Jennifer Rachford, the ACL Business Manager, for helping with various conference matters;
- the Chair of the ACL, Keh-Yih Su, and all the ACL executive board members, that have provided guidance regarding various decisions;
- the ACL executive board including the President, Tim Baldwin, for linking us with the right support; the ACL Sponsorship Director, Chris Callison-Burch, for providing guidance to our Sponsorship Chairs; and the ACL Treasurer, David Yarowsky, who negotiated a contract with Underline for supporting our virtual conference;
- Rich Gerber from Softconf, who set up the ACL-IJCNLP conference submission site, has always been responsive to our queries.

I would also like to express gratitude to our sponsors, whose generous support has been invaluable in building up ACL-IJCNLP to what it is now. These include our Diamond-level sponsors - GTCOM, LivePerson, Tourism Bureau, the Ministry of Science and Technology, the Ministry of Education and National Central University in Taiwan; our Platinum-level sponsor - Baidu; our Gold-level sponsors - Bloomberg; and our Bronze-level sponsors - Adobe.

Finally, I would like to thank all authors, senior area chairs, area chairs, reviewers, invited speakers and panelists, the volunteers organizing and chairing various sessions in the conference, and all attendees, for making this hopefully another successful NLP conference!

Hope you all enjoy ACL-IJCNLP 2022!

ACL-IJCNLP 2022 General Chair
Yulan He, King's College London, UK

Preface by the Program Committee Co-Chairs

We welcome you to ACL-IJCNLP 2022, the 2nd Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics (ACL) and the 12th International Joint Conference on Natural Language Processing (IJCNLP)! Due to the strict COVID quarantine rule imposed by the local government, ACL-IJCNLP 2022 has to be held fully virtual. However, conference organizers have worked very hard to simulate an in-person meeting setting, thanks to the relatively mature virtual conference infrastructures that have been built by our community.

ACL-IJCNLP 2022 has utilized two submission platforms SoftConf and ACL Rolling Review (ARR)-OpenReview, and received 554 submissions in total (518 from SoftConf and 36 from ARR) for the main conference. We have accepted 147 papers (87 long and 60 short) for the main conference and 44 papers for the Findings. The submissions came from all over the world. Among the 191 accepted papers, according to the information of the main contact, 84 were from the Asia-Pacific region (23 from China mainland, 18 from India, 16 from Japan, 7 from South Korea, 5 from Australia, 3 from Singapore, 3 from Taiwan, 3 from Bangladesh, 2 from New Zealand, 1 from Sri Lanka, 1 from Nepal, 1 from Malaysia, and 1 from HongKong), 42 were from the America (36 from the USA, 5 from Canada, 1 from Chile), and 65 from Europe and the Middle East (18 from the UK, 12 from Germany, 9 from France, 5 from Netherlands, 4 from Switzerland, 4 from Italy, 3 from Norway, 2 from Egypt, 2 from Spain, 1 from Estonia, 1 from Denmark, 1 from Finland, 1 from Iran, 1 from Bulgaria and 1 from Czech).

We have developed the following new attempts this year for paper submission:

- We created a new special theme "Fairness in Natural Language Processing".
- We added a new function during paper rebuttal to allow authors to upload their revised papers so that some responses can be more clearly presented and elaborated.

ACL-IJCNLP2022 does have a great program, thanks to all of you! We have put up a very exciting program with many new plenary sessions:

- We have invited four wonderful keynote speakers this year: Chris Callison-Burch (University of Pennsylvania), Eduard Hovy (University of Melbourne and Carnegie Mellon University), Juanzi Li (Tsinghua University), and Prem Natarajan (Amazon Alexa AI).
- A promised-to-be-heated debate: "Is there more to NLP than Deep Learning?" between "Yes" team: Eduard Hovy (Team Lead), Kathleen McKeown, Dan Roth, Eric Xing and "No" team: Kyunghyun Cho (Team Lead), Danqi Chen, Manling Li, Graham Neubig, to be moderated by Rada Mihalcea.
- "7 NLP Dissertation Topics for Next 7 Years" by Kevin Duh, Fei Huang, Smaranda Muresan, Preslav Nakov, Nanyun Peng, Joel Tetreault and Lu Wang.
- A panel on the special theme "Fairness in Natural Language Processing", moderated by our special theme chairs Mona Diab and Isabelle Augenstein.
- A Global Women in NLP session "Finding Your Purpose, Findign Your Voice - Professional Growth in the Age of Deep AI" led by Pascale Fung.

We are very grateful for all of these speakers and panelists on accepting our invitations! We will also have a special best paper award session and a lighting talk session for posters, following the successes of previous ACL and NAACL conferences. The excellence of the overall ACL-IJCNLP2022 program is

thanks to all the chairs and organizers. We especially thank the 47 Senior Area Chairs, 84 Area Chairs and reviewers for their hard work. We are grateful to Amanda Stent, Goran Glavaš, Graham Neubig, and Harold Rubio for their invaluable support in the commitment of papers reviewed by ARR to ACL-IJCNLP 2022. We appreciate Rich Gerber's prompt responses and support whenever we request any fix or adding new functions. It has been an enormous privilege for us to see the scientific advances that will be presented at this conference. Congratulations to all authors!

We hope you will enjoy ACL-IJCNLP 2022, and look forward to seeing many of you online!

ACL-IJCNLP 2020 Program Committee Co-Chairs

Heng Ji (University of Illinois Urbana-Champaign and Amazon Scholar)

Yang Liu (Tsinghua University)

Sujian Li (Peking University)

Preface by the Local Chair

Since winning the bid for organising ACL-IJCNLP 2022 conference in Taiwan, the local team has worked hard to get subsidies from Ministry of Science and Technology, Ministry of Education, Bureau of Foreign Trade, and National Central University, Taiwan. We also planned to co-host ACL-IJCNLP 2022 with ROCLING 2022, the annual meeting of the Association for Computational Linguistics of Chinese Language Processing in Taiwan. We, Yung-Chun Chang, Kuan-Yu (Menphis) Chen and I, envisioned that even if only half the registrants can come to Taiwan due to COVID-19, the conference will still be lively with ROCLING participants.

Even at the end of June, we remained optimistic that a hybrid conference would be possible. However, Taiwan's border control were not lifted and passengers entering Taiwan still needed to be quarantined for three plus four days after August, which will deter most international participants. Thus, we had to adopt a purely online mode at last.

It was a great experience to co-host the ACL-IJCNLP 2022 conference with the international team. On behalf of the local organising team: Yung-Chun Chang, Kuan-Yu (Menphis) Chen, Hsiu-Min Chuang, Min-Yuh Day, Hen-Hsen Huang, Lun-Wei Ku, Wen-Hsiang Lu, Tzong-Han Tsai, and Jheng-Long Wu, we would like to thank our general chair, Yulan He, program co-chairs, Heng Ji, Yang Liu, Sujian Li, and the international team. Yulan's leadership and the international team made the conference go smoothly. Without you, it would be impossible to accomplish so many tasks. I also learned a lot from it. Hope we can meet physically in the near future.

ACL-IJCNLP 2022 Local Chair
Chia-Hui Chang (National Central University)

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