# Proceedings of Machine Translation Summit XVIII

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## Volume 2: MT Users & Providers Track

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# Welcome to the 18th biennial conference of the International Association of Machine Translation (IAMT) – MT Summit 2021 Virtual!

Dear MT Colleagues and Friends,

This year's MT Summit is hosted by the Association for Machine Translation in the Americas (AMTA). Every two years, the Summit is hosted on a rotating basis by one of the three sister organizations comprising IAMT: the European Association for Machine Translation (EAMT), the Asian-Pacific Association for Machine Translation (AAMT), and of course, AMTA. While each of these organizations holds its own conferences annually or biennially, the Summit is always held in odd-numbered years, and this year, AMTA is grateful to have that honor.

After a tremendously successful MT Summit XVII held in Dublin in 2019, we anticipated an equally successfully Summit in 2021 given the rapidly accelerating interest in and research and development of neural machine translation (NMT) in both academia and industry. But as you all know, the year 2020 brought a major surprise that no one anticipated. Our biennial AMTA conference, scheduled for the fall of 2020 in Orlando, Florida was transformed into a completely virtual conference after much consternation followed by a great deal of effort. We successfully rescheduled the MT Summit 2021 conference at the same venue for the following year, thinking that it would at least be a "hybrid" conference, but alas, here we are once again with a completely virtual conference. This decision was made late in the game last April when, based on the results of a survey of likely participants, it become obvious that the vast majority would not be attending in person. Recent spikes in the cases of COVID throughout the world have further justified our decision to go completely virtual.

There have been some silver linings to this COVID cloud, however, the main one being that our AMTA 2020 virtual attendance was double that of previous years, and we anticipate that attendance for the virtual Summit will be at least double what it was in Dublin. We are also grateful that once again, we were able to reschedule our intended venue in Orlando, Florida for AMTA 2022. We hope that many of you will join us there in person! And yes, we will still add a virtual component to the conference for those who are yet unable to travel.

But enough of this COVID-related confusion! We are very pleased with the response we have had to our calls for papers, presentations, workshops, tutorials, and exhibitions for MT Summit 2021 and we are sure you'll agree that the program is brimming with relevant, exciting, and useful information, not to mention the many opportunities to view the latest technology demonstrations and opportunities to network with colleagues both old and new from across the MT spectrum. The most unique aspect of these conferences is that they are truly global gatherings of MT researchers, developers, providers, and users. Academics, students, and commercial researchers and developers are able to share their latest results and offerings with colleagues, in addition to receiving and understanding real-world user requirements. Individual MT users, as well as those from language services providers, enterprises, and governments, benefit from updates on leading-edge R&D in machine translation and have a chance to present and discuss their use cases.

At this point, I need to give some serious thanks to many organizations and individuals who have made this conference possible. First, we have received amazing support from our sponsors, for which we are tremendously grateful! Our visionary sponsor, Microsoft, made it possible for the first 150 students to register for the conference at a very significant discount, and those students quickly took advantage of this generous offer. Our

Leader-level sponsors, who will be sponsoring our conference tracks, include: Apple, Intento, Lilt, Pangeanic, (RWS) Language Weaver, Systran, Vistatec, and Yandex Cloud. Our Patron-level sponsors are: Amazon (AWS), Facebook AI, Google, Kudo, Lengoo, Logrus Global, Star, and Welocalize. To all these companies we express our most sincere gratitude for their support of MT Summit 2021. Many of them will also give demonstrations of their systems and software during our Technology Exhibition Fair, and we hope that all our attendees will take advantage of this great opportunity to see the very latest commercial offerings and advancements in the world of MT. We are grateful to have three additional exhibitors in the Fair as well: CustomMT, KantanMT, and XTM.

Finally, I need to give special thanks and recognition to the members of our organizing committee, all of whom have worked very hard and given many hours and days of their time, for the most part voluntarily, to make MT Summit 2021 a success. Listing their names and official positions doesn't really seem to be an adequate reflection of their work and sacrifice, but it's the best I can do here, and I trust they know how much their efforts are truly appreciated.

Patti O'Neill-Brown, AMTA VP, Networking chair
Natalia Levitina, AMTA Secretary
Jen Doyon, AMTA Treasurer
Kevin Duh, Research Track Co-chair
Paco Guzman, Research Track Co-chair
Janice Campbell, Users and Providers Track Co-chair
Jay Marciano, Users and Providers Track Co-chair, Workshops and Tutorials Chair
Konstantin Savenkov, Users and Providers Track Co-chair
Alex Yanishevsky, Users and Providers Track Co-chair, Conference Online Platform Chair
Ben Huyck, Government Track Co-chair
Steve La Rocca, Government Track Co-chair
Ray Flournoy, Sponsorships Chair
Kenton Murray, Student Mentoring Chair
Elaine O'Curran, AMTA Counselor, Publications Chair
Alon Lavie, AMTA Consultant
Konstantin Dranch, Communications Chair
Kate Ozerova, Marketing Lead
Darius Hughes, Webmaster

Again, welcome one and all to MT Summit XVIII 2021! I look forward to "seeing" you online and hopefully, too, in person in the future.

Steve Richardson
IAMT President and MT Summit 2021 General Conference Chair

# User/Provider Track: Introduction

The User/Provider Track at 2021 MT Summit features twenty-four presentations from individuals representing language service providers, machine translation services, universities, and other commercial enterprises.

We are privileged to have two esteemed keynote speakers. The first keynote of the conference is presented by Dr. Arle Lommel of CSA Research, who will speak on responsiveness to stakeholder requirements and touches on ethics as a part of "Responsible MT". Jane Nemcova, AI/ML Executive, is the second keynote speaker, and she discusses the importance of human knowledge in developing AI and the future needs of the market in "The Road to Infinity".

A recurring theme this year centers on evaluating, measuring, validating and improving MT quality in efforts to meet stakeholder expectations. Presentations focus on correlating various new auto-scoring metrics (e.g. hLEPOR, cushLEPOR, Prism, Laser, COMET) to human evaluations; evaluating productivity and quality of human translations versus machine-assisted translations; validating MTQE (MT quality estimation) in CAT workflows; and evaluating large volumes of post-edited data to determine confidence levels. Other topics focusing on quality improvement in NMT systems include data filtering methods and AI-enabled linguistic quality assessment of the source content.

We will hear about Canadian and European public agencies which have the need for many diverse language pairs that do not pivot through a high resource language. Different approaches to training low-resource languages are also being presented.

Another popular topic is MTPE (MT post-editing): how to measure translator productivity, its cost effectiveness, and how to incorporate MTPE training into translation pedagogy.

Important production pain points are addressed such as handling of inline tags, as well as terminology integration challenges, and glossary functionality in commercial MT systems.

Novel topics this year include sign language translation via a mobile app; MT-powered, real-time foreign news distribution; and using speech technology in translation workflows.

Finally, David Talbot, Head of Machine Translation at Yandex, serves as host and moderator for a roundtable featuring four commercial enterprises (NetApp, The Ford Motor Company, Autodesk and Salesforce) who explain each company's approach to building MT capacity and competence in-house.

We would like to thank the AMTA organizing committee for hosting this year's MT Summit and to the session and keynote speakers for their excellent presentations. We are especially grateful to the volunteer moderators for supporting the speakers, fielding the questions and keeping the presentations on schedule.

Sincerely,

Janice Campbell, Jay Marciano, Konstantin Savenkov, Alex Yanishevsky
The User/Provider Track Co-Chairs

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