

This document is part of the Research and Innovation Action “European Live Translator (ELITR)”.
This project has received funding from the European Union’s Horizon 2020 Research and
Innovation Programme under Grant Agreement No 825460.



Deliverable D7.4

Report on Dissemination Activities: Intermediate, Final

Adelheid Glott, Armin Schweinfurth (AV), Ondřej Bojar (CUNI)

Dissemination Level: Public

Final (Version 1.0), 30th June, 2020





Grant agreement no.	825460
Project acronym	ELITR
Project full title	European Live Translator
Type of action	Research and Innovation Action
Coordinator	Doc. RNDr. Ondřej Bojar, PhD. (CUNI)
Start date, duration	1 st January, 2019, 36 months
Dissemination level	Public
Contractual date of delivery	30 th June, 2020
Actual date of delivery	30 th June, 2020
Deliverable number	D7.4
Deliverable title	Report on Dissemination Activities: Intermediate, Final
Type	Report
Status and version	Final (Version 1.0)
Number of pages	12
Contributing partners	AV, all
WP leader	AV
Author(s)	Adelheid Glott, Armin Schweinfurth (AV), Ondřej Bojar (CUNI)
EC project officer	Alexandru Ceausu
The partners in ELITR are:	<ul style="list-style-type: none"> ▪ Univerzita Karlova (CUNI), Czech Republic ▪ University of Edinburgh (UEDIN), United Kingdom ▪ Karlsruher Institut für Technologie (KIT), Germany ▪ PerVoice SPA (PV), Italy ▪ alfatraining Bildungszentrum GmbH (AV), Germany
Partially-participating party	<ul style="list-style-type: none"> ▪ Nejvyšší kontrolní úřad (SAO), Czech Republic

For copies of reports, updates on project activities and other ELITR-related information, contact:

Doc. RNDr. Ondřej Bojar, PhD., ÚFAL MFF UK bojar@ufal.mff.cuni.cz
 Malostranské náměstí 25 Phone: +420 951 554 276
 118 00 Praha, Czech Republic Fax: +420 257 223 293

Copies of reports and other material can also be accessed via the project's homepage:

<http://www.elitr.eu/>

© 2020, The Individual Authors

No part of this document may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission from the copyright owner.



Contents

1	Executive Summary	4
2	Participation in Events and Trade Fairs	5
2.1	Learntec 2020	5
2.2	UniHack 2020	5
2.3	BarCamp New Work 4.0 - Netzwerk Fortbildung	6
2.4	Open Doors Day at Charles University	6
2.5	ÚFAL Monday Seminar	6
2.6	Demo for Representatives of EC	6
3	Scientific Dissemination	8
3.1	ICASSP paper on data-augmentation for seq2seq ASR	9
3.2	IWSLT paper on MT simultaneous decoding	10
4	Outlook	11
4.1	37C3 in Leipzig	11
4.2	MT Marathon in Prague	11
4.3	Regular Monday seminars at ÚFAL	11
5	Conclusion	11
	References	11



1 Executive Summary

This deliverable reports on the dissemination activities, which were done in the ELITR project.

In Section 2 describes the more or less public events and trade fairs which we have attended and presented ELITR. Then in Section 3, we list papers produced by the consortium. The Section 4 provides a short outlook for the years 2020 and 2021 and Section 5 concludes the dissemination activities.



2 Participation in Events and Trade Fairs

In this section, we list past events, including trade fairs, where we presented ELITR.

Events and Trade Fairs in 2019	
Jan	Learntec Karlsruhe
Feb	Didacta Cologne
March	Student Firms Fair Tarde
April	SCIC Interpreter´s Conference
April	Showcasing LT Technologies
April	Personal Swiss
April	Hannovermesse (HMI)
May	Via Carolina
Sep	Evropský den jazyků
Sep	Forum deutscher Mittelstand
Oct	MetaForum
Oct	SMART Select Workshop
Nov	Jeronýmovy dny
Nov	Translating Europe Forum
Nov	Medica
Nov	TEDxTrento
Nov	Open Doors Day at Charles University
Dec	Právo; Novinky (an interview in popular magazine)

Events and Trade Fairs 2020	
Jan	Open Doors Day at Charles University (JDIM)
Jan	Learntec Karlsruhe
Jan	Talk at UFAL Monday Seminar
May	UniHack
June	BarCamp New Work 4.0 Netzwerk Fortbildung
June	Demo for Representatives of EC

Some of these events are further detailed in the rest of this section.

2.1 Learntec 2020

With more than 15,600 visitors, LEARNTEC is Europe’s largest event for digital education, 411 exhibitors from 17 nations presented the digital learning trends. In the top-class congress, the current trends and future developments in digital education were discussed and informed. The visitors came mainly from industry, consulting, trade and distribution as well as educational institutions. alfaview presented its involvement in the ELITR project by means of live demos, a keynote speech and handing out promotional material to visitors at the stand.

2.2 UniHack 2020

We provided live subtitling as part of the UniHack 2020 hackathon which was held remotely on May 1–4, 2020. More information about the hackathon goals can be found on the corresponding web pages;¹ in this document, we are discussing only the experience with our subtitling. In total, there were five sessions which we subtitled, one of them in English, others in Czech. The meetings were held over Zoom and some of them were broadcast to YouTube. We encountered technical difficulties regarding bandwidth at the first session. Even though we were unable to bisect this bug, the problem never manifested since. Two other problems were that the operating system of the machine that acquires the sound lags for some time just after Zoom starts and that the models take a long time to load. After the startup, the operation was smooth.

¹<https://elitr.eu/unihack-2020/>



For the YouTube watchers the subtitle delay was next to none because our technician was connected to the original Zoom call, so the pipeline received the data sooner than the YouTube video part was broadcast.

From the organizers we know that at least one foreigner joined the hackathon because they saw that it is subtitled. We recorded and edited a short video² from the public results announcement session.

2.3 BarCamp New Work 4.0 - Netzwerk Fortbildung

The first digital BarCamp of the network for vocational training took place on 28.5.2020 under the title “WEITERBILDUNG neu denken - die Zukunft gestalten”. The focus of the event, for which more than 300 continuing training providers had registered, was the digitisation of continuing vocational training - with all its facets. This included the topics: Which platform is suitable, how to teach interactively and digitally, how to market digital offers and of course the question of which learning formats are suitable for which topics. alfaview presented its own session entitled “New Work 4.0” on the possibility of live transcription and live translation, a working world without language barriers.

2.4 Open Doors Day at Charles University

The Faculty of Mathematics and Physics, Charles University, part of which ÚFAL is, organizes events for students and prospective students a few times per year. Each department is presenting the most interesting current research and we included ELITR technologies in this showcase.

In the covered period, we took part in two such events: the Open Doors Day (November 21, 2019) and One Day with Computer Science and Mathematics (Jeden den s informatikou a matematikou, JDIM, January 29, 2020). We included a short demo of live subtitling during our main talk and provided further details at the booth. A brief report on the first event, including a video, was then covered in our blog.³

2.5 ÚFAL Monday Seminar

The “Linguistic Mondays” seminar series⁴ is a traditional venue of lectures on computational linguistics. Occasionally, when distinguished guests are available, the seminar labelled as “Fred Jelinek Seminar”⁵. Most lectures are given in English and many also in Czech.

We took the opportunity of these regular events and used them as test sessions for our technologies. Gradually over the weeks, we were always improving some aspects of the pipeline: the underlying models, the integration, the presentation; we also started working on domain adaptation for the area of computational linguistics and worked towards the talk-level adaptation, collecting materials relevant for the particular lecturer and topic and extending the ASR vocabulary for the missing words.

In many of these sessions, we also offered the subtitles to participants of the seminar to collect their feedback.

While the level of true “dissemination” of ELITR at these seminars was small, it improved the general awareness of our project among experts in the area of Prague. One of the Monday seminars was specifically devoted to ELITR.⁶

2.6 Demo for Representatives of EC

Due to the COVID-19 pandemic, the main event of ELITR, EUROSAI Congress, was postponed by one year. ELITR was asked by the project officer to run a remote demo session instead. The

²<https://www.youtube.com/watch?v=whZHHVkhBpQ>

³<https://elitr.eu/a-tireless-interpreter/>

⁴<http://ufal.mff.cuni.cz/events/linguistic-mondays>

⁵<http://ufal.mff.cuni.cz/events/fred-jelinek-seminars>

⁶<https://lectures.ms.mff.cuni.cz/view.php?rec=455>



demo was supposed to take place on May 15, 2020, close to the original date of the Congress.

Due to a major blackout at the site one of the key technical partners caused by the main power supply wire cut by a neighbouring construction and by a suspected bomb discovery⁷, the demo was eventually run on June 17, 2020.

Aside from the project officer, several other representatives of DG Connect and DG SCIC were present.

Technically, the demo was complicated by the fact that the project infrastructure has been always built for subtitling of live sessions with physical presence of the sound acquisition systems at the venue. For the remote demo, we had to develop a simple video streaming system and provide live subtitles to this streamed video.

Except for one false start, all the sample videos (up to 3 minutes each) were successfully broadcasted and complemented with subtitle or paragraph view of our live translations. We made use of the extra time obtained by the postponing of the demo and equipped some of the videos with correct transcript. This allowed us to present not only the live system, but also provide error rates for some of the videos.

The demo settings were:

- A short German speech, German WER 2.99, translated to English, Czech and Romanian.
- 3 minutes of a German lecture, German WER 14.23, translated to English, Czech and Romanian.
- A short Czech speech, translated to English, German and Romanian.
- 3 minutes of an English lecture in the auditing domain, non-native speaker, English WER 32.37, BLEU into German 14.99.
- 3 minutes of Czech interpreter of the English lecture, Czech WER 18.60.

The participants of the demo provided us with their comments and suggestions and also brief summary of the general impression:

It is good to see that half way through the project we have all components working together, although the recognition, translation quality and subtitles display have yet to improve in quality.

⁷https://presse.karlsruhe.de/db/meldungen/verwaltung/verdacht_auf_blindganger_aus_dem_zweiten_weltkrieg2.html



3 Scientific Dissemination

Overall, the following publications acknowledge the support from ELITR:

- Erion Çano and Ondřej Bojar. 2020. Two huge title and keyword generation corpora of research articles. In *Proceedings of The 12th Language Resources and Evaluation Conference*, pages 6663–6671, Marseille, France, may. European Language Resources Association.
- Felix Schneider and Alex Waibel. 2020. Towards stream translation: Adaptive computation time for simultaneous machine translation. In *Proceedings of the 17th International Conference on Spoken Language Translation*, pages 228–236.
- Thai-Son Nguyen, Sebastian Stüker, and Alex Waibel. 2020. Toward cross-domain speech recognition with end-to-end models.
- Dario Franceschini, Chiara Canton, Ivan Simonini, Armin Schweinfurth, Adelheid Glott, Sebastian Stüker, Thai-Son Nguyen, Felix Schneider, Thanh-Le Ha, Alex Waibel, Barry Haddow, Philip Williams, Rico Sennrich, Ondřej Bojar, Sangeet Sagar, Dominik Macháček, and Otakar Smrž. 2020. Removing European language barriers with innovative machine translation technology. In *Proceedings of the 1st International Workshop on Language Technology Platforms*, pages 44–49, Marseille, France, May. European Language Resources Association.
- Thai-Son Nguyen, Sebastian Stüker, Jan Niehues, and Alex Waibel. 2020. Improving sequence-to-sequence speech recognition training with on-the-fly data augmentation. In *ICASSP 2020-2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 7689–7693. IEEE.
- Biao Zhang, Philip Williams, Ivan Titov, and Rico Sennrich. 2020. Improving massively multilingual neural machine translation and zero-shot translation. In *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics*, pages 1628–1639, Online, July. Association for Computational Linguistics.
- Dominik Macháček, Jonáš Kratochvíl, Sangeet Sagar, Matuš Žilinec, Ondřej Bojar, Thai-Son Nguyen, Felix Schneider, Philip Williams, and Yuekun Yao. 2020. ELITR Non-Native Speech Translation at IWSLT 2020. In *Proceedings of the 17th International Conference on Spoken Language Translation (IWSLT 2020)*, Seattle, USA.
- Yuekun Yao and Barry Haddow. 2020. Dynamic Masking for Improved Stability in Spoken Language Translation. *arXiv e-prints*, page arXiv:2006.00249, May.
- Biao Zhang, Ivan Titov, Barry Haddow, and Rico Sennrich. 2020. Adaptive feature selection for end-to-end speech translation. Submitted to EMNLP.
- Elena Voita, Rico Sennrich, and Ivan Titov. 2019. When a Good Translation is Wrong in Context: Context-Aware Machine Translation Improves on Deixis, Ellipsis, and Lexical Cohesion. In *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*, Florence, Italy. Association for Computational Linguistics.
- Ngoc-Quan Pham, Thai-Son Nguyen, Jan Niehues, Markus Müller, and Alex Waibel. 2019. Very deep self-attention networks for end-to-end speech recognition. *Proc. Interspeech, Graz, Austria*.
- Anna Nedoluzhko and Ondřej Bojar. 2019. Towards automatic minuting of meetings. In *Proceedings of the 19th Conference ITAT 2019: Slovenskočeský NLP workshop (SloNLP 2019)*, pages 112–119, Košice, Slovakia. CreateSpace Independent Publishing Platform.
- Kateřina Rysová, Magdaléna Rysová, Tomáš Musil, Lucie Poláková, and Ondřej Bojar. 2019. A test suite and manual evaluation of document-level nmt at wmt19. In *Proceedings of the Fourth Conference on Machine Translation (Volume 2: Shared Task Papers, Day 1)*, pages 455–463, Florence, Italy, August. Association for Computational Linguistics.
- Dominik Macháček, Jonáš Kratochvíl, Tereza Vojtěchová, and Ondřej Bojar. 2019. A speech test set of practice business presentations with additional relevant texts. In *SLSP*.
- Tereza Vojtěchová, Michal Novák, Miloš Klouček, and Ondřej Bojar. 2019. Sao wmt19 test suite: Machine translation of audit reports. In *Proceedings of the Fourth Conference on Machine Translation (Volume 2: Shared Task Papers, Day 1)*, pages 481–493, Florence, Italy, August. Association for Computational Linguistics.



- Biao Zhang and Rico Sennrich. 2019. Root Mean Square Layer Normalization. In *Advances in Neural Information Processing Systems 32*, Vancouver, Canada.
- Thuong-Hai Pham, Dominik Macháček, and Ondřej Bojar. 2019. Promoting the knowledge of source syntax in transformer nmt is not needed. *Computacion y Sistemas*. in print.
- Erion Çano and Ondřej Bojar. 2019. Keyphrase generation: A text summarization struggle. In *Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, Volume 1 (Long and Short Papers)*, pages 666–672, Minneapolis, Minnesota, June. Association for Computational Linguistics.
- Erion Çano and Ondřej Bojar. 2019. Keyphrase generation: A multi-aspect survey. In *2019 25th Conference of Open Innovations Association (FRUCT)*, pages 85–94, Helsinki, Finland, Nov.
- Ngoc-Quan Pham, Jan Niehues, Thanh-Le Ha, and Alex Waibel. 2019. Improving zero-shot translation with language-independent constraints. *arXiv preprint arXiv:1906.08584*.
- Thai-Son Nguyen, Sebastian Stueker, Jan Niehues, and Alex Waibel. 2019. Improving sequence-to-sequence speech recognition training with on-the-fly data augmentation. *arXiv preprint arXiv:1910.13296*.
- Biao Zhang, Ivan Titov, and Rico Sennrich. 2019. Improving Deep Transformer with Depth-Scaled Initialization and Merged Attention. In *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and 9th International Joint Conference on Natural Language Processing*, Hong Kong, China. Association for Computational Linguistics.
- Erion Çano and Ondřej Bojar. 2019. Efficiency metrics for data-driven models: A text summarization case study. In *Proceedings of the 12th International Conference on Natural Language Generation*, pages 229–239, Tokyo, Japan, October–November. Association for Computational Linguistics.
- Ivana Kvapilíková, Dominik Macháček, and Ondřej Bojar. 2019. Cuni systems for the unsupervised news translation task in wmt 2019. In *Proceedings of the Fourth Conference on Machine Translation (Volume 2: Shared Task Papers, Day 1)*, pages 241–248, Florence, Italy, August. Association for Computational Linguistics.
- Elena Voita, Rico Sennrich, and Ivan Titov. 2019. Context-aware monolingual repair for neural machine translation. In *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and the 9th International Joint Conference on Natural Language Processing (EMNLP-IJCNLP)*, pages 876–885, Hong Kong, China, November. Association for Computational Linguistics.

Most of the publications are discussed in the respective deliverables of the individual technical work packages. For some of them, we provide further details in the rest of this section.

3.1 ICASSP paper on data-augmentation for seq2seq ASR

Sequence-to-sequence (seq2seq) attention-based modeling (Chodorowski et al., 2015; Chan et al., 2015) has been a promising approach to build speech recognition applications. In this approach, a single neural network that handles acoustic and language modeling roles can be trained in a unified end-to-end fashion. The inference is simpler and more efficient as it does not require to build and integrate an external language model as in the traditional approaches. We have investigated to build seq2seq models for better recognition performance. To achieve that, we propose three on-the-fly data augmentation methods (Nguyen et al., 2020). The first two modify the input sequences from different inspirations and aim to improve the generalization of the log-mel spectrogram encoder. The third approach improves the decoder by adding sub-samples of target sequences. All of the proposed methods are computationally cheap and can be performed on-the-fly and optimized with the model. The experiments on LSTM-based and self-attention seq2seq architectures prove that the proposed data augmentation methods are very efficient as the experimented seq2seq models achieved state-of-the-art performance on the telephone conversion speech benchmarks.



3.2 IWSLT paper on MT simultaneous decoding

As part of the scientific dissemination of the project data, we published a paper on simultaneous decoding at the International Workshop for Simultaneous Machine Translation (IWSLT) 2020. The paper is titled “Towards Stream Translation: Adaptive Computation Time for Simultaneous Machine Translation”. The paper presents an advance in simultaneous translation that may allow us to more easily run end-to-end simultaneous speech translation models in the future.

IWSLT is an ACL workshop and while its attendance and reach is reduced due to the COVID-19 pandemic and the event being shifted to a virtual one, the paper will still be published as part of the ACL anthology which has significant reach within the NLP community. The paper will also be presented by way of a recorded presentation and live Q&A during the workshop on July 9th and 10th.



4 Outlook

Due to the outbreak of Covid-19 and the resulting restrictions on trade fairs and other events, we expect that dissemination activities will shift further into the digital space. alfaview had more than 100 live presentations with interested parties between February and May 2020 and was able to strongly position the transcription and translation function from the ELITR project. alfaview is currently in discussions with leading trade fair providers to develop digital trade fair concepts. Should there be any co-operations, we expect ELITR to be well positioned within the trade fair projects.

In the rest of this section, we provide further details on selected dissemination opportunities which we are considering, in addition to the EUROSAT Congress and the corresponding workshop LangTools (see Deliverable D7.2).

4.1 37C3 in Leipzig

We are considering demoing the system at the Chaos Communications Congress (37C3) in late December in Leipzig. This event is the second biggest hacker event in the world and in previous years has attracted up to 17 000 participants. Because of the technical nature of the event, as well its international audience, we expect interest in our system to be high.

Because of Covid-19, it is not yet determined if and in what scope the event will take place. It will be announced finally in October. In any case, it is a yearly event so it will take place again before the end of the project, giving us another opportunity to attend.

4.2 MT Marathon in Prague

MT Marathon⁸ is an established “summer school” and hackathon for researchers and practitioners of machine translation. Speech translation was addressed in past editions via lectures.

MT Marathon 2020 was originally planned to happen in September 2020 in Prague but it was never announced because the Covid-19 outbreak. Substitute dates have not yet been finalized but we are considering January 2021, still well within the lifetime of ELITR.

Lectures at MT Marathon are held in English and large diversity of nationalities among the participants is guaranteed. This makes a nice setting for showcasing live speech translation technologies (and their problems) to experienced fellow researchers.

We plan to live-subtitle all MT Marathon lectures, in order to test the limitations of the technology in the narrow domain of computational linguistics.

4.3 Regular Monday seminars at ÚFAL

As soon as the “Linguistic Monday” (see Section 2.5) restart, we will again regularly test our systems. The current focus will be on practical usability of the supportive subtitles.

5 Conclusion

This deliverable presented the dissemination activities carried out in the first 18 months of ELITR and a brief outlook of foreseen events.

References

- Thai-Son Nguyen, Sebastian Stüker, Jan Niehues, and Alex Waibel. 2020. Improving sequence-to-sequence speech recognition training with on-the-fly data augmentation. In *ICASSP 2020-2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 7689–7693. IEEE.
- William Chan, Navdeep Jaitly, Quoc V Le, and Oriol Vinyals. 2015. Listen, attend and spell. *arXiv preprint arXiv:1508.01211*.

⁸<http://www.statmt.org/mtm09> through [mtm19](http://www.statmt.org/mtm19)



- Jan K Chorowski, Dzmitry Bahdanau, Dmitriy Serdyuk, Kyunghyun Cho, and Yoshua Bengio. 2015. Attention-based models for speech recognition. In *Advances in neural information processing systems*.