

# **18th International Conference on Spoken Language Translation (IWSLT 2021)**

Bangkok, Thailand  
5-6 August 2021

ISBN: 978-1-7138-3378-9

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2021) by the Association for Computational Linguistics and the Asian Federation of Natural Language Processing  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2021)

For permission requests, please contact the Association for Computational Linguistics  
at the address below.

Association for Computational Linguistics  
209 N. Eighth Street  
Stroudsburg, Pennsylvania 18360

Phone: 1-570-476-8006  
Fax: 1-570-476-0860

[acl@aclweb.org](mailto:acl@aclweb.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## Table of Contents

### *FINDINGS OF THE IWSLT 2021 EVALUATION CAMPAIGN*

Antonios Anastasopoulos, Ondřej Bojar, Jacob Bremerman, Roldano Cattoni, Maha Elbayad, Marcello Federico, Xutai Ma, Satoshi Nakamura, Matteo Negri, Jan Niehues, Juan Pino, Elizabeth Salesky, Sebastian Stüker, Katsuhito Sudoh, Marco Turchi, Alexander Waibel, Changhan Wang and Matthew Wiesner .....	1
---	---

### *The USTC-NELSLIP Systems for Simultaneous Speech Translation Task at IWSLT 2021*

Dan Liu, Mengge Du, Xiaoxi Li, Yuchen Hu and Lirong Dai .....	30
---	----

### *NAIST English-to-Japanese Simultaneous Translation System for IWSLT 2021 Simultaneous Text-to-text Task*

Ryo Fukuda, Yui Oka, Yasumasa Kano, Yuki Yano, Yuka Ko, Hirotaka Tokuyama, Kosuke Doi, Sakriani Sakti, Katsuhito Sudoh and Satoshi Nakamura .....	39
---	----

### *The University of Edinburgh's Submission to the IWSLT21 Simultaneous Translation Task*

Sukanta Sen, Ulrich Germann and Barry Haddow .....	46
--	----

### *Without Further Ado: Direct and Simultaneous Speech Translation by AppTek in 2021*

Parnia Bahar, Patrick Wilken, Mattia A. Di Gangi and Evgeny Matusov .....	52
---	----

### *The Volctrans Neural Speech Translation System for IWSLT 2021*

Chengqi Zhao, zhicheng liu, Jian Tong, Tao Wang, Mingxuan Wang, Rong Ye, Qianqian Dong, Jun Cao and Lei Li .....	64
--	----

### *THE IWSLT 2021 BUT SPEECH TRANSLATION SYSTEMS*

hari Krishna vydana, Martin Karafiat, Lukas Burget and Jan Černocký .....	75
---	----

### *Dealing with training and test segmentation mismatch: FBK@IWSLT2021*

Sara Papi, Marco Gaido, Matteo Negri and Marco Turchi .....	84
---	----

### *The NiuTrans End-to-End Speech Translation System for IWSLT 2021 Offline Task*

Chen Xu, Xiaoqian Liu, Xiaowen Liu, Tiger Wang, Canan Huang, Tong Xiao and Jingbo Zhu ..	92
--	----

### *ESPnet-ST IWSLT 2021 Offline Speech Translation System*

Hirofumi Inaguma, Brian Yan, Siddharth Dalmia, Pengcheng Guo, Jiatong Shi, Kevin Duh and Shinji Watanabe .....	100
--	-----

### *End-to-End Speech Translation with Pre-trained Models and Adapters: UPC at IWSLT 2021*

Gerard I. Gállego, Ioannis Tsiamas, Carlos Escolano, José A. R. Fonollosa and Marta R. Costa-jussà 110	
---	--

### *VUS at IWSLT 2021: A Finetuned Pipeline for Offline Speech Translation*

Yong Rae Jo, Youngki Moon, Minji Jung, Jungyoon Choi, Jihyun Moon and Won Ik Cho ..	120
---	-----

### *KIT's IWSLT 2021 Offline Speech Translation System*

Tuan Nam Nguyen, Thai Son Nguyen, Christian Huber, Ngoc-Quan Pham, Thanh-Le Ha, Felix Schneider and Sebastian Stüker .....	125
--	-----

### *FST: the FAIR Speech Translation System for the IWSLT21 Multilingual Shared Task*

Yun Tang, Hongyu Gong, Xian Li, Changhan Wang, Juan Pino, Holger Schwenk and Naman Goyal 131	
---	--

<i>Maastricht University's Multilingual Speech Translation System for IWSLT 2021</i>	138
Danni Liu and Jan Niehues .....	
<i>ZJU's IWSLT 2021 Speech Translation System</i>	144
Linlin Zhang .....	
<i>Multilingual Speech Translation with Unified Transformer: Huawei Noah's Ark Lab at IWSLT 2021</i>	149
Xingshan Zeng, Liangyou Li and Qun Liu .....	
<i>Multilingual Speech Translation KIT @ IWSLT2021</i>	154
Ngoc-Quan Pham, Tuan Nam Nguyen, Thanh-Le Ha, Sebastian Stüker, Alexander Waibel and Dan He .....	
<i>Edinburgh's End-to-End Multilingual Speech Translation System for IWSLT 2021</i>	160
Biao Zhang and Rico Sennrich .....	
<i>ON-TRAC' systems for the IWSLT 2021 low-resource speech translation and multilingual speech translation shared tasks</i>	169
Hang Le, Florentin Barbier, Ha Nguyen, Natalia Tomashenko, salima mdhaffar, Souhir Gabiche Gahbiche, Benjamin Lecouteux, Didier Schwab and Yannick Estève .....	
<i>IMS' Systems for the IWSLT 2021 Low-Resource Speech Translation Task</i>	175
Pavel Denisov, Manuel Mager and Ngoc Thang Vu .....	
<i>The USYD-JD Speech Translation System for IWSLT2021</i>	182
Liang Ding and Dacheng Tao .....	
<i>mixSeq: A Simple Data Augmentation Methodfor Neural Machine Translation</i>	192
Xueqing Wu, Yingce Xia, Jinhua Zhu, Lijun Wu, Shufang Xie, Yang Fan and Tao Qin .....	
<i>On Knowledge Distillation for Translating Erroneous Speech Transcriptions</i>	198
Ryo Fukuda, Katsuhiro Sudoh and Satoshi Nakamura .....	
<i>Self-Guided Curriculum Learning for Neural Machine Translation</i>	206
Lei Zhou, Liang Ding, Kevin Duh, Shinji Watanabe, Ryohei Sasano and Koichi Takeda .....	
<i>Between Flexibility and Consistency: Joint Generation of Captions and Subtitles</i>	215
Alina Karakanta, Marco Gaido, Matteo Negri and Marco Turchi .....	
<i>Large-Scale English-Japanese Simultaneous Interpretation Corpus: Construction and Analyses with Sentence-Aligned Data</i>	226
Kosuke Doi, Katsuhiro Sudoh and Satoshi Nakamura .....	
<i>Inverted Projection for Robust Speech Translation</i>	236
Dirk Padfield and Colin Cherry .....	
<i>Towards the evaluation of automatic simultaneous speech translation from a communicative perspective</i>	245
Claudio Fantinioli and Bianca Prandi .....	
<i>Tag Assisted Neural Machine Translation of Film Subtitles</i>	255
Aren Siekmeier, Wonkee Lee, Hongseok Kwon and Jong-Hyeok Lee .....	
<i>A Statistical Extension of Byte-Pair Encoding</i>	263
David Vilar and Marcello Federico .....	

<i>Integrated Training for Sequence-to-Sequence Models Using Non-Autoregressive Transformer</i>	
Evgeniia Tokarchuk, Jan Rosendahl, Weiyue Wang, Pavel Petrushkov, Tomer Lancewicki, Shahram Khadivi and Hermann Ney . . . . .	276
<i>Data Augmentation by Concatenation for Low-Resource Translation: A Mystery and a Solution</i>	
Toan Q. Nguyen, Kenton Murray and David Chiang . . . . .	287