

**EMNLP 2015**

**Tenth Workshop on  
Statistical Machine Translation**

**Proceedings of the Workshop**

17-18 September 2015

Lisbon, Portugal

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## Preface

The EMNLP 2015 Workshop on Statistical Machine Translation (WMT 2015) took place on Thursday and Friday, September 17-18, 2015 in Lisbon, Portugal, immediately preceding the Conference on Empirical Methods in Natural Language Processing (EMNLP).

This was the tenth time this workshop has been held. The first time it was held at HLT-NAACL 2006 in New York City, USA. In the following years the Workshop on Statistical Machine Translation was held at ACL 2007 in Prague, Czech Republic, ACL 2008, Columbus, Ohio, USA, EACL 2009 in Athens, Greece, ACL 2010 in Uppsala, Sweden, EMNLP 2011 in Edinburgh, Scotland, NAACL 2012 in Montreal, Canada, ACL 2013 in Sofia, Bulgaria, and ACL 2014 in Baltimore, Maryland, USA.

The focus of our workshop was to use parallel corpora for machine translation. Recent experimentation has shown that the performance of SMT systems varies greatly with the source language. In this workshop we encouraged researchers to investigate ways to improve the performance of SMT systems for diverse languages, including morphologically more complex languages, languages with partial free word order, and low-resource languages.

Prior to the workshop, in addition to soliciting relevant papers for review and possible presentation, we conducted five shared tasks: a general translation task, an automatic post-editing task, a quality estimation task, a metrics task, and a tuning task. The automatic post-editing task was introduced this year as a pilot to examine the capabilities of automatic methods for correcting errors produced by machine translation systems. This year's tuning task is a follow up of the WMT 2011 invitation-only tunable metrics task to assess a system's ability to optimize the parameters of a given hierarchical MT system. The results of all shared tasks were announced at the workshop, and these proceedings also include an overview paper for the shared tasks that summarizes the results, as well as provides information about the data used and any procedures that were followed in conducting or scoring the task. In addition, there are short papers from each participating team that describe their underlying system in greater detail.

Like in previous years, we have received a far larger number of submission than we could accept for presentation. This year we have received 28 full paper submissions and 47 shared task submissions. In total WMT 2015 featured 11 full paper oral presentations and 46 shared task poster presentations.

The invited talk was given by Jacob Devlin (Microsoft Research), entitled "A Practical Guide to Real-Time Neural Translation".

We would like to thank the members of the Program Committee for their timely reviews. We also would like to thank the participants of the shared task and all the other volunteers who helped with the evaluations.

Ondřej Bojar, Rajan Chatterjee, Christian Federmann, Barry Haddow, Chris Hokamp, Matthias Huck, Varvara Logacheva, Pavel Pecina, Philipp Koehn, Christof Monz, Matteo Negri, Matt Post, Carolina Scarton, Lucia Specia, and Marco Turchi.

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Joy Ying Zhang (Carnegie Mellon University)  
Tiejun Zhao (Harbin Institute of Technology)  
Yinggong Zhao (State Key Laboratory for Novel Software Technology at Nanjing University)

**Invited Speaker:**

Jacob Devlin (Microsoft Research)



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# Conference Program

**Thursday, September 17, 2015**

**09:00–09:05** *Opening Remarks*

**09:05–09:50** **Session 1: Shared Tasks**

*Findings of the 2015 Workshop on Statistical Machine Translation*

Ondřej Bojar, Rajen Chatterjee, Christian Federmann, Barry Haddow, Matthias Huck, Chris Hokamp, Philipp Koehn, Varvara Logacheva, Christof Monz, Matteo Negri, Matt Post, Carolina Scarton, Lucia Specia and Marco Turchi

**09:50–10:30** **Session 2: Data Selection**

09:50–10:10 *Statistical Machine Translation with Automatic Identification of Translationese*

Naama Twitto, Noam Ordan and Shuly Wintner

10:10–10:30 *Data Selection With Fewer Words*

amittai axelrod, Philip Resnik, Xiaodong He and Mari Ostendorf

**10:30–11:00** *Coffee Break*

**11:00–12:30** **Session 3: Poster Session - Shared Task: Translation**

*DFKI's experimental hybrid MT system for WMT 2015*

Eleftherios Avramidis, Maja Popović and Aljoscha Burchardt

*ParFDA for Fast Deployment of Accurate Statistical Machine Translation Systems, Benchmarks, and Statistics*

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**Thursday, September 17, 2015 (continued)**

*New Language Pairs in TectoMT*

Ondřej Dušek, Luís Gomes, Michal Novák, Martin Popel and Rudolf Rosa

*Tuning Phrase-Based Segmented Translation for a Morphologically Complex Target Language*

Stig-Arne Grönroos, Sami Virpioja and Mikko Kurimo

*The AFRL-MITLL WMT15 System: There's More than One Way to Decode It!*

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*GF Wide-coverage English-Finnish MT system for WMT 2015*

Prasanth Kolachina and Aarne Ranta

*LIMSI@WMT' 15 : Translation Task*

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**Thursday, September 17, 2015 (continued)**

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Philip Williams, Rico Sennrich, Maria Nadejde, Matthias Huck and Philipp Koehn

**11:00–12:30 Session 3: Poster Session - Shared Task: Automatic Post-Editing**

*The FBK Participation in the WMT15 Automatic Post-editing Shared Task*

Rajen Chatterjee, Marco Turchi and Matteo Negri

*USAAR-SAPE: An English–Spanish Statistical Automatic Post-Editing System*

Santanu Pal, Mihaela Vela, Sudip Kumar Naskar and Josef van Genabith

*Why Predicting Post-Editition is so Hard? Failure Analysis of LIMSI Submission to the APE Shared Task*

Guillaume Wisniewski, Nicolas Pécheux and François Yvon

**12:30–14:00 Lunch**

**14:00–15:30 Session 4: Invited Talk**

14:00–15:30 *A Practical Guide to Real-Time Neural Translation*

Jacob Devlin

**15:30–16:00 Coffee Break**

**Thursday, September 17, 2015 (continued)**

**16:00–17:00 Session 5: Syntax-Based Translation and Rescoring**

16:00–16:20 *Hierarchical Machine Translation With Discontinuous Phrases*

Miriam Kaeshammer

16:20–16:40 *Discontinuous Statistical Machine Translation with Target-Side Dependency Syntax*

Nina Seemann and Andreas Maletti

16:40–17:00 *ListNet-based MT Rescoring*

Jan Niehues, Quoc-Khanh DO, Alexandre Allauzen and Alex Waibel

**Friday, September 18, 2015**

**09:00–09:50 Session 6: Shared Tasks**

09:00–09:20 *Overview of the Quality Estimation Task*

Multiple Speakers

*Results of the WMT15 Metrics Shared Task*

Miloš Stanojević, Amir Kamran, Philipp Koehn and Ondřej Bojar

*Results of the WMT15 Tuning Shared Task*

Miloš Stanojević, Amir Kamran and Ondřej Bojar



**Friday, September 18, 2015 (continued)**

**09:50–10:30 Session 7: Translation Modeling**

09:50–10:10 *Extended Translation Models in Phrase-based Decoding*  
Andreas Guta, Joern Wuebker, Miguel Graca, Yunsu Kim and Hermann Ney

10:10–10:30 *Investigations on Phrase-based Decoding with Recurrent Neural Network Language and Translation Models*  
Tamer Alkhouli, Felix Rietig and Hermann Ney

**10:30–11:00 Coffee Break**

**11:00–12:30 Session 8: Poster Session - Shared Task: Quality Estimation**

*Referential Translation Machines for Predicting Translation Quality and Related Statistics*  
Ergun Bicici, Qun Liu and Andy Way

*UAlacant word-level machine translation quality estimation system at WMT 2015*  
Miquel Esplà-Gomis, Felipe Sánchez-Martínez and Mikel Forcada

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*LORIA System for the WMT15 Quality Estimation Shared Task*  
David Langlois

*Data enhancement and selection strategies for the word-level Quality Estimation*  
Varvara Logacheva, Chris Hokamp and Lucia Specia

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**Friday, September 18, 2015 (continued)**

*UGENT-LT3 SCATE System for Machine Translation Quality Estimation*

Arda Tezcan, Veronique Hoste, Bart Desmet and Lieve Macken

**11:00–12:30 Session 8: Poster Session - Shared Task: Metrics**

*Multi-level Evaluation for Machine Translation*

Boxing Chen, Hongyu Guo and Roland Kuhn

*VERTa: a Linguistically-motivated Metric at the WMT15 Metrics Task*

Elisabet Comelles and Jordi Atserias

*UPF-Cobalt Submission to WMT15 Metrics Task*

Marina Fomicheva, Núria Bel, Iria da Cunha and Anton Malinovskiy

*Machine Translation Evaluation using Recurrent Neural Networks*

Rohit Gupta, Constantin Orasan and Josef van Genabith

*Alignment-based sense selection in METEOR and the RATATOUILLE recipe*

Benjamin Marie and Marianna Apidianaki

*chrF: character n-gram F-score for automatic MT evaluation*

Maja Popović

*BEER 1.1: ILLC UvA submission to metrics and tuning task*

Miloš Stanojević and Khalil Sima'an

*Predicting Machine Translation Adequacy with Document Embeddings*

Mihaela Vela and Liling Tan

*LeBLEU: N-gram-based Translation Evaluation Score for Morphologically Complex Languages*

Sami Virpioja and Stig-Arne Grönroos

*CASICT-DCU Participation in WMT2015 Metrics Task*

Hui Yu, Qingsong Ma, Xiaofeng Wu and Qun Liu

**Friday, September 18, 2015 (continued)**

**11:00–12:30 Session 8: Poster Session - Shared Task: Tuning**

*Drem: The AFRL Submission to the WMT15 Tuning Task*

Grant Erdmann and Jeremy Gwinnup

*MT Tuning on RED: A Dependency-Based Evaluation Metric*

Liangyou Li, Hui Yu and Qun Liu

*Improving evaluation and optimization of MT systems against MEANT*

Chi-kiu Lo, Philipp Dowling and Dekai Wu

**12:30–14:00 Lunch**

**14:00–15:20 Session 9: Evaluation and System Combination**

*An Investigation of Machine Translation Evaluation Metrics in Cross-lingual Question Answering*

Kyoshiro Sugiyama, Masahiro Mizukami, Graham Neubig, Koichiro Yoshino, Sakriani Sakti, Tomoki Toda and Satoshi Nakamura

*Dependency Analysis of Scrambled References for Better Evaluation of Japanese Translation*

Hideki Isozaki and Natsume Kouchi

*How do Humans Evaluate Machine Translation*

Francisco Guzmán, Ahmed Abdelali, Irina Temnikova, Hassan Sajjad and Stephan Vogel

*Local System Voting Feature for Machine Translation System Combination*

Markus Freitag, Jan-Thorsten Peter, Stephan Peitz, Minwei Feng and Hermann Ney

**15:20–16:00 Coffee Break**

**Friday, September 18, 2015 (continued)**

**16:00–17:00 Session 10: Closing Session and Open Discussion**