

# Rui Wang

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## Experience

- 2019- Tenure-track Researcher, Advanced Translation Technology Laboratory, NICT, Kyoto, Japan.
- 2016-2019: Postdoctoral Researcher, Advanced Translation Technology Laboratory, NICT, Kyoto, Japan.
- 2012-2016: Ph.D. in Computer Science, Shanghai Jiao Tong University, working with Bao-Liang Lu and Hai Zhao, Shanghai, China.
- 2014: Joint Ph.D., CNRS-University Lyon1, working with Sabine Ploux, Lyon, France.
- 2013: Internship Research Fellow, NICT, working with Masao Utiyama, Isao Goto, Andrew Finch, and Eiichiro Sumita, Kyoto, Japan.
- 2009-2012: Master in Computer Science, University of Chinese Academy of Sciences, working with Xiao li and Xi Zhou, Beijing & Urumqi, China.
- 2005-2009: Bachelor in Computer Science, Harbin Institute of Technology, Harbin, China.

## Grants and Fundings

- 2019-2021: PI of NICT tenure-track startup fund: "Toward Intelligent MT" (8,000,000JPY).
- 2019-2022 (19K20354): PI of JSPS grant-in-aid for early-career scientists (national fund of Japan): "Un-supervised NMT in Universal Scenarios" (4,180,000JPY).

## Academic Services

- Area co-chair of ICLR-2021, CCL-2019, and CCL-2018.
- Organization co-chair of PACLIC-29 and YCCL-2012.
- PC member of ACL, ICLR, EMNLP, NAACL, COLING, IJCNLP, AACL, IJCNN, AAAI, IJCAI, etc.
- Reviewer of JSPS national fund, Computational Linguistics (standing reviewer), Transactions of the Association for Computational Linguistic (standing reviewer), IEEE/ACM TASLP, TALLIP, Computer Speech and Language (outstanding reviewer), Neurocomputing, Neural Processing Letters, Language Resources and Evaluation, etc.

## Internship Hosting and Supervising

- 2019 @NICT: Zhuosheng Zhang (master student of SJTU), Zuchao Li (Ph.D. student of SJTU), Chaoqun Duan (Ph.D. student of HIT), and Fengshun Xiao (master student of SJTU).
- 2018 @NICT: Haipeng Sun (Ph.D. student of HIT), Shu Jiang (Ph.D. student of SJTU), and Mingming Yang (Ph.D. student of HIT/Soochow University).

2017 @NICT: Kehai Chen (Ph.D. of HIT->researcher of NICT) and Zhisong Zhang (master of SJTU->CMU).

## Selected Publications ("\*" denotes the corresponding author)

### *Shared Tasks*

CONLL-2019 (Corresponding author): 1st in the DM sub-task and the 2nd overall.

WMT-2019 (Corresponding author): 1st in the only unsupervised MT task (German-Czech) by BLEU and human evaluation

WMT-2018 (Second author): 1st places in four tasks (English<->Estonian and English<->Finnish) and tied 1st in other three tasks (Chinese->English and English<->Turkish).

WAT-2018 (First author): 1st places in Myanmar (Burmese) <- English by BLEU.

CWMT-2018 (First author): Tied 1st places in English<->Chinese by significance test.

### *Journal Articles*

*Towards More Diverse Input Representation for Neural Machine Translation*

Kehai Chen, **Rui Wang\***, Masao Utiyama, Eiichiro Sumita, Tiejun Zhao, Muyun Yang, and Hai Zhao.  
IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP), accepted

*Unsupervised Neural Machine Translation with Cross-lingual Language Representation Agreement*

Haipeng Sun, **Rui Wang** (as the supervisor), Kehai Chen, Masao Utiyama, Eiichiro Sumita, and Tiejun Zhao  
IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP), accepted

*Neural Machine Translation with Sentence-level Topic Context*

Kehai Chen, **Rui Wang** (as the supervisor), Masao Utiyama, Eiichiro Sumita, and Tiejun Zhao.  
IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP), Volume 27, Issue 12, 2019.

*Sentence Selection and Weighting for Neural Machine Translation Domain Adaptation.*

**Rui Wang**, Masao Utiyama, Andrew Finch, Lemao Liu, Kehai Chen, and Eiichiro Sumita.  
IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP), Volume 26, Issue 10, 2018.

*Graph-based Bilingual Word Embedding for Statistical Machine Translation.*

**Rui Wang**, Hai Zhao\*, Bao-Liang Lu, Sabine Ploux\*, Masao Utiyama, and Eiichiro Sumita.  
ACM Transactions on Asian and Low-Resource Language Information Processing (TALLIP), Volume 17, Issue 4, 2018.

*A Neural Approach to Source Dependency-Based Context Model for Statistical Machine Translation.*

Kehai Chen, Tiejun Zhao, Muyun Yang, Lemao Liu\*, Akihiro Tamura, **Rui Wang**, Masao Utiyama, and Eiichiro Sumita.  
IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP), Volume 26, Issue 2, 2017.

*Converting Continuous-Space Language Models into N-gram Language Models with Efficient Bilingual Pruning for Statistical Machine Translation.*

**Rui Wang**, Masao Utiyama\*, Isao Goto, Eiichiro Sumita, Hai Zhao\*, and Bao-Liang Lu.

ACM Transactions on Asian and Low-Resource Language Information Processing (TALLIP), Volume 15, Issue 3, 2016.

*Bilingual Continuous-Space Language Model Growing for Statistical Machine Translation.*

**Rui Wang**, Hai Zhao\*, Bao-Liang Lu, Masao Utiyama, and Eiichiro Sumita.

IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP), Volume:23, Issue:7, 2015.

## Conference Proceedings

*Content Word Aware Neural Machine Translation*

Kehai Chen, **Rui Wang\***, Masao Utiyama, and Eiichiro Sumita

The 58th Annual Meeting of the Association for Computational Linguistics (ACL-2020), Seattle, USA

*Knowledge Distillation for Multilingual Unsupervised Neural Machine Translation*

Haipeng Sun, **Rui Wang\***, Kehai Chen, Masao Utiyama, Eiichiro Sumita, and Tiejun Zhao\*

The 58th Annual Meeting of the Association for Computational Linguistics (ACL-2020), Seattle, USA

*Regularized Context Gates on Transformer for Machine Translation*

Xintong Li, Lemao Liu, **Rui Wang**, Guoping Huang, and Max Meng

The 58th Annual Meeting of the Association for Computational Linguistics (ACL-2020), Seattle, USA

*Data-dependent Gaussian Prior Objective for Language Generation*

Zuchao Li, **Rui Wang\***, Kehai Chen, Masao Utiyama, Eiichiro Sumita, Zhuosheng Zhang, and Hai Zhao\*

International Conference on Learning Representations (ICLR-2020), Addis Ababa, Ethiopia

**Note: this is a full-score paper (34/2500+) and a long-time talk presentation**

*Neural Machine Translation with Universal Visual Representation*

Zhuosheng Zhang, Kehai Chen, **Rui Wang\***, Masao Utiyama, Eiichiro Sumita, Zuchao Li, and Hai Zhao\*

International Conference on Learning Representations (ICLR-2020), Addis Ababa, Ethiopia

*Explicit Sentence Compression for Neural Machine Translation*

Zuchao Li, **Rui Wang\***, Kehai Chen, Masao Utiyama, Eiichiro Sumita, Zhuosheng Zhang, and Hai Zhao\*

Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI-2020), New York, USA

*SG-Net: Syntax-Guided Machine Reading Comprehension*

Zhuosheng Zhang, Yuwei Wu, Junru Zhou, Sufeng Duan, Hai Zhao\*, and **Rui Wang\***

Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI-2020), New York, USA

*Recurrent Positional Embedding for Neural Machine Translation*

Kehai Chen, **Rui Wang\***, Masao Utiyama, and Eiichiro Sumita

2019 Conference on Empirical Methods in Natural Language Processing and 9th International Joint Conference on Natural Language Processing (EMNLP-IJCNLP2019), Hong Kong, China

*Unsupervised Bilingual Word Embedding Agreement for Unsupervised Neural Machine Translation*

Haipeng Sun, **Rui Wang\***, Kehai Chen, Masao Utiyama, Eiichiro Sumita, and Tiejun Zhao\*

The 57th Annual Meeting of the Association for Computational Linguistics (ACL-2019), Florence, Italy

*Neural Machine Translation with Reordering Embeddings*

Kehai Chen, **Rui Wang\***, Masao Utiyama, and Eiichiro Sumita

The 57th Annual Meeting of the Association for Computational Linguistics (ACL-2019), Florence, Italy

*Sentence-Level Agreement for Neural Machine Translation*

Mingming Yang, **Rui Wang\***, Kehai Chen, Masao Utiyama, Eiichiro Sumita, Min Zhang\*, and Tiejun Zhao

The 57th Annual Meeting of the Association for Computational Linguistics (ACL-2019), Florence, Italy

*Lattice-Based Transformer Encoder for Neural Machine Translation*

Fengshun Xiao, Jiangtong Li, Hai Zhao, **Rui Wang**, and Kehai Chen

The 57th Annual Meeting of the Association for Computational Linguistics (ACL-2019), Florence, Italy

*A Survey of Domain Adaptation for Neural Machine Translation.*

Chenhui Chu and **Rui Wang**

The 27th International Conference on Computational Linguistics (COLING-2018), Santa Fe, USA.

*Exploring Recombination for Efficient Decoding of Neural Machine Translation.*

Zhisong Zhang, **Rui Wang\***, Masao Utiyama, Eiichiro Sumita, and Hai Zhao\*

2018 Conference on Empirical Methods in Natural Language Processing (EMNLP-2018), Brussels, Belgium.

*Dynamic Sentence Sampling for Efficient Training of Neural Machine Translation.*

**Rui Wang**, Masao Utiyama, and Eiichiro Sumita.

The 56th Annual Meeting of the Association for Computational Linguistics (ACL-2018), Melbourne, Australia.

*Syntax-Directed Attention for Neural Machine Translation*

Kehai Chen, **Rui Wang\***, Masao Utiyama, Eiichiro Sumita, and Tiejun Zhao.

The Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-2018), New Orleans, USA.

*Instance Weighting for Neural Machine Translation Domain Adaptation.*

**Rui Wang**, Masao Utiyama, Lemao Liu, Kehai Chen, and Eiichiro Sumita.

Conference on Empirical Methods in Natural Language Processing (EMNLP-2017), Copenhagen, Denmark.

*Neural Machine Translation with Source Dependency Representation.*

Kehai Chen, **Rui Wang\***, Masao Utiyama, Lemao Liu, Akihiro Tamura, Eiichiro Sumita, and Tiejun Zhao.

Conference on Empirical Methods in Natural Language Processing (EMNLP-2017), Copenhagen, Denmark.

*Sentence Embedding for Neural Machine Translation Domain Adaptation.*

**Rui Wang**, Andrew Finch, Masao Utiyama, and Eiichiro Sumita.

The 55th annual meeting of the Association for Computational Linguistics (ACL-2017), Vancouver, Canada.

*Connecting Phrase based Statistical Machine Translation Adaptation.*

**Rui Wang**, Hai Zhao\*, Bao-Liang Lu, Masao Utiyama\*, and Eiichiro Sumita.

The 26th International Conference on Computational Linguistics (COLING-2016), Osaka, Japan

*A Bilingual Graph-based Semantic Model for Statistical Machine Translation.*

**Rui Wang**, Hai Zhao\*, Sabine Ploux\*, Bao-Liang Lu, and Masao Utiyama.

25th International Joint Conference on Artificial Intelligence (IJCAI-16), New York, USA.

*Neural Network Based Bilingual Language Model Growing for Statistical Machine Translation.*

**Rui Wang**, Hai Zhao\*, Bao-Liang Lu, Masao Utiyama, and Eiichiro Sumita.

Proceedings of the 2014 Conference on Empirical Methods in Natural Language Processing (EMNLP-2014), Doha, Qatar.

*Converting Continuous-Space Language Models into N-gram Language Models for Statistical Machine Translation.*

**Rui Wang**, Masao Utiyama, Isao Goto, Eiichro Sumita, Hai Zhao, and Bao-Liang Lu.

Proceedings of the 2013 Conference on Empirical Methods in Natural Language Processing (EMNLP-2013), Seattle, USA.

## *Patent*

*Multi-domain Neural Machine Translation.*

Japan Patent

**Rui Wang** and Masao Utiyama.

*Reordering Mechanism for Neural Machine Translation.*

Japan Patent

Kehai Chen, **Rui Wang**, and Masao Utiyama.

*Content Word Aware Neural Machine Translation.*

Japan Patent

Kehai Chen, **Rui Wang**, and Masao Utiyama.

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