

## Zaixiang Zheng (郑在翔)

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### RESEARCH INTERESTS EDUCATION

*Natural language processing, machine translation, generative models, text generation*

*Ph.D candidate* in Computer Science, Nanjing University 2018.9 - 2021.6 (expected)  
Supervisors: Dr. Shujian Huang and Dr. Jiajun Chen

*Visiting research student*, ILCC, University of Edinburgh 2019.9 - 2020.8  
Supervisor: Dr. Alexandra Birch

*M.S. in Computer Science*, Nanjing University 2016.9 - 2018.9  
Supervisors: Dr. Shujian Huang and Dr. Jiajun Chen

*B.E. in Automobile Engineering*, Hunan University 2012.9 - 2016.6  
Supervisor: Dr. Xiaolin Song

### PUBLICATION

**Zaixiang Zheng**, Hao Zhou, Shujian Huang, Lei Li, Xin-Yu Dai, Jiajun Chen. 2020. *Mirror-Generative Neural Machine Translation*. In Proceedings of International Conference on Learning Representations (ICLR) (Accepted as *talk with full review scores*).

**Zaixiang Zheng**, Shujian Huang, Rongxiang Weng, Xin-Yu Dai, Jiajun Chen. 2020. *Improving Self-Attention Networks with Sequential Relations*. IEEE/ACM Transactions on Audio, Speech and Language Processing (TASLP).

**Zaixiang Zheng**, Xiang Yue, Shujian Huang, Jiajun Chen, Alexandra Birch. 2020. *Towards Making the Most of Context in Neural Machine Translation*. In Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence (IJCAI).

**Zaixiang Zheng**, Shujian Huang, Zhaopeng Tu, Xin-Yu Dai, Jiajun Chen. 2019. *Dynamic Past and Future 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).

**Zaixiang Zheng\***, Hao Zhou\*, Shujian Huang, Lili Mou, Xin-Yu Dai, Jiajun Chen, Zhaopeng Tu. 2018. *Modeling Past and Future for Neural Machine Translation*. Transactions of the Association for Computational Linguistics (TACL). Volume 6.

Peng Wu, Shujian Huang, Rongxiang Weng, **Zaixiang Zheng**, Jianbing Zhang, Xiaohui Yan, Jiajun Chen. 2019. *Learning Representation Mapping for Relation Detection in Knowledge Base Question Answering*. In Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics (ACL).

**Zaixiang Zheng**, Shujian Huang, Xin-Yu Dai, Jiajun Chen. 2018. *Controlling the Transition of Hidden States for Neural Machine Translation*. In Proceedings of 14th China Workshop on Machine Translation (CWMT). Communications in Computer and Information Science. Volume 954.

Rongxiang Weng, Shujian Huang, **Zaixiang Zheng**, Xin-Yu Dai, Jiajun Chen. 2017. *Neural Machine Translation with Word Predictions*. In Proceedings of the 2017 Conference on Empirical Methods in Natural Language Processing (EMNLP).

*Non-archival works/Preprints*

**Zaixiang Zheng**, Shujian Huang, Jiajun Chen, Alexandra Birch. 2020. *Modeling Distinct Context for Non-Autoregressive Translation Models*. Under review at EMNLP 2020.

Xuhui Zhou, **Zaixiang Zheng**, Shujian Huang. 2020. *RPD: A Distance Function Between Word Embeddings*. In Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL): Student Research Workshop.

Zhen Cheng, **Zaixiang Zheng**, Xin-Yu Dai, Shujian Huang, Jiajun Chen. 2019. *Multi-Perspective Inferer: Reasoning Sentences Relationship from Holistic Perspective*. arXiv preprint. arXiv:1911.03668.

**Zaixiang Zheng**, Shujian Huang, Zewei Sun, Rongxiang Weng, Xin-Yu Dai, Jiajun Chen. 2018. *Learning to Discriminate Noises for Incorporating External Information in Neural Machine Translation*. arXiv preprint. arXiv:1810.10317.

<b>EMPLOYMENT</b>	<b>NLP Research Intern</b> Working with Dr. Hao Zhou and Dr. Lei Li on multilingual generative NMT and general-purpose text generation.	ByteDance AI Lab. 2020.9 - present
<b>PROJECTS</b>	<b>NJUNMT-pytorch</b> Homepage: <a href="https://github.com/whr94621/NJUNMT-pytorch">https://github.com/whr94621/NJUNMT-pytorch</a> NJUNMT-pytorch is an pytorch-based toolkit for neural machine translation. NJUNMT-pytorch is highly research-oriented, containing several common baseline models such as RNMT and Transformer. <ul style="list-style-type: none"><li>• one of the developers and contributors</li><li>• developed modules including dynamic-nmt, doc-nmt, mirror-nmt, nonautoregressive-nmt and relation-aware self-attention</li><li>• developed training pipeline, distributed training, web server, bug fixes and version update</li></ul>	2018.4 - present
	<b>Patent-NMT</b> Patent-NMT is a project cooperated with Sunyu Inc., in which we provide a neural machine translation solution to international patent translation for Sunyu Inc. <ul style="list-style-type: none"><li>• project leader (3 group members in total), coordinator and major developer</li><li>• developed core NMT models, web server, APIs and document.</li></ul>	2018.8 - 2019.5
<b>SKILLS</b>	<i>Natural Languages:</i> Mandarin (native), English (IELTS 7.0) <i>Programming Languages:</i> Python, C/C++, Java, Matlab, Shell <i>Operating System:</i> Linux (two-year experiences as a part-time IT administrator in my lab.) <i>Tools/Frameworks:</i> Pytorch, Tensorflow, Theano, Git, Flask	
<b>ACADEMIC ACTIVITIES</b>	<b>Conference program committee</b> ICLR 2021; ACL 2019, 2020; EMNLP 2020; AACL 2020; AAAI 2020; IJCAI 2020; INLG 2019; CCL 2019	

### ***Talks***

Latent variable models for neural machine translation. Techbeat. 2020.10  
Mirror-generative neural machine translation. Bytedance AI Lab. 2020.5  
Towards making the most of context in NMT. AIS 2020. 2020.5  
Recent advances in non-autoregressive NMT. Samsung EU. 2020.6

### **TEACHING ACTIVITIES**

*Tutor:* Deep learning for NLP and Its Practice. NJUNLP Summer Camp. 2019.7  
*TA:* Elementary Programming. Nanjing U. 2018 Fall  
*TA:* Advanced Programming. Nanjing U. 2017 Fall

### **AWARDS**

Guorui Scholarship for graduate student 2019.10  
China Scholarship Council (CSC) Scholarship 2019.6  
The First Class Scholarship for graduate student 2018.10

### **OTHERS**

#### ***Patents:***

Shujian Huang, **Zaixiang Zheng**, Xinyu Dai, Jianbing Zhang, Cunyan Yin, Jiajun Chen. *Neural machine translation method utilizing external information*. CN201810581372.6.

Shujian Huang, **Zaixiang Zheng**, Xinyu Dai, Jianbing Zhang, Cunyan Yin, Jiajun Chen. *Neural machine translation system utilizing external information and training method for translation system*. CN201810582125.8.