# Zhenqiao Song

Bytedance Ltd. – Shanghai, China

📱 +86-18621012485 • ✉ zqsong108@gmail.com • 🌐 jocelynsong.github.io

## Education

**Fudan University**                                                    **Shanghai, China**
                                                                        *Sep. 2017-Jun. 2020*
  ○ M.S. in Computer Science. Advisor: Prof. Xiaoqing Zheng
**Xiamen University**                                                   **Xiamen, China**
                                                                        *Sep. 2013-Jun. 2017*
  ○ B.S. in Computer Science. Advisor: Prof. Jinsong Su

## Research Interests

My research interests lie in the general area of natural language processing. I used to study applications on **generative modeling** and **cross-lingual representation learning**. Currently, I focus on **efficient generative modeling**, *e.g.,* multilingual text generation and parallel multilingual translation.

## Research Experience

**Bytedance AI lab**                                                    **Shanghai, China**
*Researcher and Engineer advised by Dr. Hao Zhou and Dr. Lei Li, MLNLC team.*   *Jun. 2019- Now*
  ○ Works on learning efficient neural generative models on large-scale discrete and unstructured data
  - **Parallel Multilingual Translation via Contextualized Self Switching**
    · Propose **a non-autoregressive multilingual neural machine tarnslation model**, which simultaneously learns aligned cross-lingual representations and a better parallel multilingual translation model.
    · Outpeform multilingual transformer on all datasets with a 6.1x faster decoding speed in inference.
  - **Multilingual Natural Language Generation via Large-scale Pretraining**
    · **Pretrain a multilingual transformer** with large-scale parallel and monolingual data, which performs well in many downstream tasks and scenarios.
    · **Pretrain a multilingual parallel generation model** with large-scale parallel data, which performs competitively with mBART.
  - **Triangular Bidword Generation for Sponsored Search Auction**
    · Propose **a triangular generation model**, which takes the high-quality data of paired <query, Ad> as a supervision signal to indirectly guide the bidword generation from both Ad and query in the triangle.
    · Bidwords generated in the triangular training framework are more relevant and diverse than those by Transformer.

**Fudan University Natural Language Processing Group**                  **Shanghai, China**
*Student Researcher advised by Prof. Xiaoqing Zheng*                    *Sep. 2017-Jun. 2020*
  ○ Worked on text generation and cross-lingual representation learning
  - **Generating responses with a specific emotion in dialog**
    · Propose an emotional dialogue system (EmoDS) that can generate the meaningful responses with a coherent structure for a post, and meanwhile express the desired emotion explicitly or implicitly.
    · Experimental results show that the proposed model can generate more relevant, diverse and emotional reponses than baselines.
  - **Jointly Learning Bilingual Word Embeddings and Alignments**
    · Propose a method to learn bilingual word embeddings and alignments jointly, in which both the tasks are reinforced mutually and can benefit from each other.
    · Embeddings produced by this method perform well in many downstream tasks, such as bilingual word induction, cross-lingual document classification and alignment error rate.

**Laboratory of Information Processing and Intelligent Control**       **Xiamen, China**
                                                                        *Sep. 2013-Jun. 2017*

*Student Researcher advised by Prof. Jinsong Su*

○ Worked on cross-lingual representation learning and statistical machine translation
  - **Exploring Implicit Semantic Constraints for Bilingual Word Embeddings**
    · Propose a method to exploit implicit constraints into learning bilingual word embeddings.
    · Embeddings learned by this method significantly improve the statistical machine translation performance.

## Publications

[1] **Zhenqiao Song**, Xiaoqing Zheng, Lu Liu, Mu Xu, and Xuan-Jing Huang. "Generating responses with a specific emotion in dialog". In: *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics* (**ACL**). 2019, pp. 3685–3695.

[2] **Zhenqiao Song**, Jiaze Chen, Hao Zhou, and Lei Li. "Triangular Bidword Generation for Sponsored Search Auction". In: *Proceedings of the 14th ACM International Conference on Web Search and Data Mining* (**WSDM**). 2021, pp. 707–715.

[3] **Zhenqiao Song**, Hao Zhou, Jingjing Xu, Lihua Qian, and Lei Li. "Non-Autoregressive Models are Better Multilingual Translators". In: *Submitted to ICLR 2022*.

[4] **Zhenqiao Song**, Xiaoqing Zheng, and Xuanjing Huang. "Jointly Learning Bilingual Word Embeddings and Alignments". In: *Journal of Machine translation* (2021).

[5] Jinsong Su, **Zhenqiao Song**, Yaojie Lu, Mu Xu, Changxing Wu, and Yidong Chen. "Exploring Implicit Semantic Constraints for Bilingual Word Embeddings". In: *Neural Processing Letters* 48.2 (2018), pp. 1073–1088.

[6] Yiran Chen, **Zhenqiao Song**, Xianze Wu, Danqing Wang, Jingjing Xu, Jiaze Chen, Hao Zhou, and Lei Li. "MTG: A Benchmarking Suite for Multilingual Text Generation". In: *arXiv preprint arXiv:2108.07140* (2021).

[7] Lu Liu, **Zhenqiao Song**, Xiaoqing Zheng, and Hao Zhou. "Scheduled Self-Training for Multilingual Text Generation". In: *Submitted to WWW 2022*.

[8] Lu Liu, **Zhenqiao Song**, and Xiaoqing Zheng. "Improving Coreference Resolution by Leveraging Entity-Centric Features with Graph Neural Networks and Second-order Inference". In: *arXiv preprint arXiv:2009.04639* (2020).

## Honors and Awards

○ **National Scholarship**. 2020

○ **Shanghai Outstanding Graduate**. 2020

○ **Fudan University Excellent Scholarship**. 2017&2018&2019

○ **Xiamen University Excellent Scholarship**. 2013-2017

## Academic Services

○ **Conference Reviewer**: ACL 2020, EMNLP 2020

## Teaching

○ **Teaching Assistant** at Fudan University: Data Structures and Algorithms; Linear Algebra

## Skill Set

○ **Machine Learning API:**  Tensorflow, Pytorch