Yu Bao

Ph. D. · Nanjing University

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Education

Nanjing University   *Nanjing, China*
Ph. D. in Computer Science   *Mar. 2022*
  - Dissertation: *Research on Deep Text Generation Models with Structure Modeling*
  - Advisor: Prof. Jiajun Chen and Prof. Shujian Huang

Northeast Forestry University   *Harbin, China*
B. Sc. in Mathematics   *Jul. 2015*
  - Thesis: *Stock Selection by Clustering and Dynamic Programming*

Employments

ByteDance AI Lab   *Shanghai, China*
Research Intern   *Apr. 2021 - Present*
  - *latent*-GLAT: Glancing at Latent Variables for Parallel Text Generation [1]

    Highlight: We propose to train non-autoregressive models by glancing training with discrete latent variables, which eliminates the limitation of knowledge distillation and implements the high-efficient parallel decoding on widely scenarios.
  - **Glancing Transformer for Non-Autoregressive Neural Machine Translation** [3]

    Highlight: This work achieved success in WMT-2021 and *won the first place in English↔German translation setting*. It also has been deployed to ByteDance VolcTrans. To the best of our knowledge, it is the first deployed parallel translation system in the world with 10X speedup.
  - Mentor: Dr. Hao Zhou

ByteDance AI Lab   *Beijing, China*
Research Intern   *Jan. 2019 - Sept. 2019*
  - **PNAT: Non-autoregressive Transformer by Position Learning** [7]
  - **Generating Sentences from Disentangled Syntactic and Semantic Spaces** [6]
  - Mentor: Dr. Hao Zhou and Dr. Lei Li

Awards

Outstanding PhD candidate, Nanjing University, 2020

Artificial Intelligence Scholarship, Nanjing University, 2019

Outstanding Graduate Student, Nanjing University, 2019

First-Class Academic Scholarship of Graduate Student, Nanjing University, 2016

The Second Prize of the Heilongjiang Province Division in National University Student Mathematical Modeling Competition, 2013

Skills

Programming   Python, PyTorch, LaTeX
Languages   Chinese (native), English (CET6)

Research interests

I'm interested in natural language processing and deep learning, such as natural language understanding (word segmentation, named entity recognition, syntactic parsing, etc.) and natural language generation (paraphrase generation, machine translation, controllable text generation, etc.).

– **Natural Language Understanding**: In my earlier research experiences, I was devoted to *structural prediction tasks*.

– **Natural Language Generation**: Since 2018, I have been studying *deep generative models*, including variational autoencoders (VAE) or non-autoregressive Transformer (NAT). The research findings are published at top-tier *ACL venues.

Publications

1. ***latent*-GLAT: Glancing at Latent Variables for Parallel Text Generation**
   Yu Bao, Hao Zhou, Shujian Huang, Dongqi Wang, Lihua Qian, Xinyu Dai, Jiajun Chen and Lei Li
   ACL 2022 | CCF-A | Paper | Code

2. **Unsupervised Paraphrasing via Syntactic Template Sampling**
   Yu Bao, Shujian Huang, Hao Zhou, Lei Li, Xinyu Dai, Jiajun Chen
   SCIENTIA SINICA Informationis 2022 | CCF-A in Chinese | Paper

3. **Glancing Transformer for Non-Autoregressive Neural Machine Translation**
   Lihua Qian, Hao Zhou, **Yu Bao**, Mingxuan Wang, Lin Qiu, Weinan Zhang, Yong Yu, Lei Li
   ACL 2021 | CCF-A | Paper | Code

4. **Non-Autoregressive Translation by Learning Target Categorical Codes**
   Yu Bao, Shujian Huang, Tong Xiao, Dongqi Wang, Xinyu Dai, Jiajun Chen
   NAACL-HLT 2021 | CCF-C | Paper | Video | Code

5. **Explicit Semantic Decomposition for Definition Generation**
   Jiahuan Li*****, **Yu Bao***, Shujian Huang, Xinyu Dai, Jiajun Chen
   ACL 2020 | CCF-A | Paper | Video

6. **Generating Sentences from Disentangled Syntactic and Semantic Spaces**
   Yu Bao*, Hao Zhou*****, Shujian Huang, Lei Li, Lili Mou, Olga Vechtomova, Xinyu Dai, Jiajun Chen
   ACL 2019 | CCF-A | Paper | Code

7. **PNAT: Non-Autoregressive Transformer by Position Learning**
   Yu Bao, Hao Zhou, Jiangtao Feng, Mingxuan Wang, Shujian Huang, Jiajun Chen, Lei Li
   preprint 2019 | Paper

8. **Non-autoregressive Machine Translation by Modeling Syntactic Dependency Interrelation**
   Yu Bao*, Dongqi Wang*, Shujian Huang, Xinyu Dai, Jiajun Chen
   Under review 2022

9. **Mitigating Fluency Bias in Likelihood-based Generative Models for Out-of-distribution Detection**
   Yawen Ouyang, Shi Zong, **Yu Bao**, Xinyu Dai, Shujian Huang, Jiajun Chen
   Under review 2022

Talks

1. Research and Development of Parallel Text Generation, ByteDance AI Lab, Oct. 2021.

2. Advice for Undergraduate Students, Northeast Forestry University, Nov. 2020.

Academic Services

Student Member of Youth Working Committee of the Chinese Information Processing Society of China (CIPSC)

Journal Reviewer of Journal of Artificial Intelligence Research (JAIR)

Program Committee Members of SIGKDD 2022, NAACL 2022, ACL 2022, ICLR 2022, AAAI 2022, EMNLP 2021, ACL 2021, IJCAI 2020, etc.

Teaching experiences

1. Teaching Assistant: Natural Language Generation and Machine Translation, Nanjing University, 2021
2. Teaching Assistant: Advanced Programming in C++, Nanjing University, 2020 & 2018
3. Teaching Assistant: Introduction to Software Industry, Nanjing University, 2018