

# YU BAO

Ph. D. · Nanjing University

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## EDUCATION

### Nanjing University

PH. D. IN COMPUTER SCIENCE

- Dissertation: *Research on Deep Text Generation Models with Structure Modeling*
- Advisor: Prof. [Jiajun Chen](#) and Prof. [Shujian Huang](#)

Nanjing, China

Mar. 2022

### Northeast Forestry University

B. SC. IN MATHEMATICS

- Thesis: *Stock Selection by Clustering and Dynamic Programming*

Harbin, China

Jul. 2015

## RESEARCH INTERESTS

My main research interests include *structural prediction* and *natural language generation*.

- **Structural Prediction:** In my earlier research experiences, I was devoted to *structural prediction tasks*, such as word segmentation, named entity recognition, syntax parsing, etc.
- **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.

## EXPERIENCES

### ByteDance AI Lab

RESEARCH INTERN

Shanghai, China

Apr. 2021 - Present

- **Parallel Decoding Sequences by Glancing Discrete Latent Variables** [7]

**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** [5]

**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

RESEARCH INTERN

Beijing, China

Jan. 2019 - Sept. 2019

- **PNAT: Non-autoregressive Transformer by Position Learning** [1]
- **Generating Sentences from Disentangled Syntactic and Semantic Spaces** [2]
- Mentor: Dr. [Hao Zhou](#) and Dr. [Lei Li](#)

## AWARDS

Outstanding PhD candidate in Program B of Nanjing University, 2020

Artificial Intelligence Scholarship at Nanjing University, 2019

Outstanding Graduate Student of Nanjing University, 2019

## PUBLICATIONS

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- [7] **Yu Bao**, Hao Zhou, Shujian Huang, Dongqi Wang, Lihua Qian, Xinyu Dai, Jiajun Chen and Lei Li. “Parallel Decoding Sequences by Glancing Discrete Latent Variables”. In: **ACL’2022**. (CCF-A, Accepted)
- [6] **Yu Bao**, Shujian Huang, Hao Zhou, Lei Li, Xinyu Dai, Jiajun Chen. “Unsupervised Paraphrasing via Syntactic Template Sampling”. In: **SCIENTIA SINICA Informationis** (CCF-A in Chinese)[[Paper](#)].
- [5] Lihua Qian, Hao Zhou, **Yu Bao**, Mingxuan Wang, Lin Qiu, Weinan Zhang, Yong Yu, Lei Li. “Glancing Transformer for Non-Autoregressive Neural Machine Translation”. In: **ACL’2021**(CCF-A) [[Paper](#)][[Code](#)].
- [4] **Yu Bao**, Shujian Huang, Tong Xiao, Dongqi Wang, Xinyu Dai, Jiajun Chen. “Non-Autoregressive Translation by Learning Target Categorical Codes”. In: **NAACL-HLT’2021**(CCF-C) [[Paper](#)] [[Video](#)] [[Code](#)].
- [3] Jiahuan Li\*, **Yu Bao\***, Shujian Huang, Xinyu Dai, Jiajun Chen. “Explicit Semantic Decomposition for Definition Generation”. In: **ACL’2020** (CCF-A, \* equal contributions) [[Paper](#)] [[Video](#)].
- [2] **Yu Bao\***, Hao Zhou\*, Shujian Huang, Lei Li, Lili Mou, Olga Vechtomova, Xinyu Dai, Jiajun Chen. “Generating Sentences from Disentangled Syntactic and Semantic Spaces”. In: **ACL’2019** (CCF-A, \* equal contributions) [[Paper](#)][[Code](#)].
- [1] **Yu Bao**, Hao Zhou, Jiangtao Feng, Mingxuan Wang, Shujian Huang, Jiajun Chen, Lei Li. “PNAT: Non-Autoregressive Transformer by Position Learning”. arxiv preprint. 2019 [[Paper](#)].

## TALKS

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1. Research and Development of Parallel Text Generation, ByteDance AI Lab, Online, Oct. 2021.
2. Advice for Undergraduate Students, Northeast Forestry University, Online, Nov. 2020.

## TEACHING EXPERIENCES

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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

## ACADEMIC SERVICES

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ACL, Reviewer, 2021-2022  
EMNLP, Reviewer, 2021  
NAACL, Reviewer, 2022  
ICLR, Reviewer, 2022  
SIGKDD, PC Member, 2022  
AAAI, Reviewer, 2022  
IJCAI, PC Member, 2020  
Journal of Artificial Intelligence Research (JAIR), Reviewer, 2019  
Youth Working Committee of the Chinese Information Processing Society of China (CIPSC), Student Member, since 2020

## SKILLS

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