

# Yuxian Gu

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## Education

### Tsinghua University

PH.D. STUDENT IN COMPUTER SCIENCE AND TECHNOLOGY

- Member of **Tsinghua Conversational AI Group (CoAI)**
- Research Interest: Efficient Language Models, Dialogue System
- Advisor: Prof. Minlie Huang

Beijing, China

Sept. 2021 - Present

### Tsinghua University

B. ENG. IN COMPUTER SCIENCE AND TECHNOLOGY

Beijing, China

Sept. 2017 - June 2021

## Selected Publications

### [1] Data Selection via Optimal Learning for Language Models

Yuxian Gu, Yaru Hao, Qingxiu Dong, Li Dong, Minlie Huang, Furu Wei. *arxiv pre-print*, 2024.

### [2] MiniPLM: Knowledge Distillation for Pre-training Language Models

Yuxian Gu, Hao Zhou, Fandong Meng, Minlie Huang. *arxiv pre-print*, 2024.

### [3] MiniLLM: Knowledge Distillation of Large Language Models

Yuxian Gu, Li Dong, Furu Wei, Minlie Huang. In *Proceedings of the Twelfth International Conference on Learning Representations (ICLR)*, 2024.

### [4] Pre-Training to Learn in Context

Yuxian Gu, Li Dong, Furu Wei, Minlie Huang. In *Proceedings of the 61th Annual Meeting of the Association for Computational Linguistics (ACL)*, 2023. (Oral)

### [5] Learning Instructions with Unlabeled Data for Zero-Shot Cross-Task Generalization

Yuxian Gu, Pei Ke, Xiaoyan Zhu, Minlie Huang. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2022. (Oral)

### [6] PPT: Pre-Trained Prompt Tuning for Few-Shot Learning

Yuxian Gu\*, Xu Han\*, Zhiyuan Liu, Minlie Huang. In *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (ACL)*, 2022.

### [7] CPM-2: Large-Scale Cost-Effective Pre-Trained Language Models

Zhengyan Zhang\*, Yuxian Gu\*, Xu Han\*, Shengqi Chen\*, Chaojun Xiao\*, Zhenbo Sun, Yuan Yao, Fanchao Qi, Jian Guan, Pei Ke, Yanzheng Cai, Guoyang Zeng, Zhixing Tan, Zhiyuan Liu, Minlie Huang, Wentao Han, Yang Liu, Xiaoyan Zhu, Maosong Sun. *AI Open*, 2022.

### [8] Pre-Trained Models: Past, Present and Future

Xu Han\*, Zhengyan Zhang\*, Ning Ding\*, Yuxian Gu\*, Xiao Liu\*, Yuqi Huo\*, Jiezhong Qiu, Yuan Yao, Ao Zhang, Liang Zhang, Wentao Han, Minlie Huang, Qin Jin, Yanyan Lan, Yang Liu, Zhiyuan Liu, Zhiwu Lu, Xipeng Qiu, Ruihua Song, Jie Tang, Ji-Rong Wen, Jinhui Yuan, Wayne Xin Zhao, Jun Zhu. *AI Open*, 2022.

### [9] When does Further Pre-training MLM Help? An Empirical Study on Task-Oriented Dialog Pre-training

Qi Zhu, Yuxian Gu, Lingxiao Luo, Bing Li, Cheng Li, Wei Peng, Minlie Huang, Xiaoyan Zhu. In *Proceedings of the Second Workshop on Insights from Negative Results in NLP (EMNLP Workshop)*, 2021. (Best Paper)

### [10] Train No Evil: Selective Masking for Task-Guided Pre-Training

Yuxian Gu, Zhengyan Zhang, Xiaozhi Wang, Zhiyuan Liu, Maosong Sun. In *Proceedings of the Empirical Methods in Natural Language Processing (EMNLP)*, 2020. (short)

## Experience

### Microsoft Research Asia

RESEARCH INTERN

- Mentored by Dr. Li Dong.

Beijing, China

Oct. 2022 - Mar. 2024

### Tsinghua NLP Lab

STUDENT RESEARCH ASSISTANT

- Advised by Prof. Zhiyuan Liu.

Beijing, China

Sept. 2018 - Feb. 2020

## Honors & Awards

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2023	<b>Comprehensive Scholarship</b> Awarded to Ph.D. students with excellent achievements by Tsinghua University.	Tsinghua University
2022	<b>Comprehensive Scholarship</b> Awarded to Ph.D. students with excellent achievements by Tsinghua University.	Tsinghua University
2021	<b>Excellent Graduate, Tsinghua University (top 5%)</b> Awarded to graduates with excellent achievements by Tsinghua University.	Tsinghua University
2021	<b>Outstanding Graduate, Dept. CST, Tsinghua University</b> Awarded to graduates with excellent achievements by Department of Computer Science and Technology, Tsinghua University.	Tsinghua University
2021	<b>Outstanding Undergraduate Dissertation, Tsinghua University (top 5%)</b> Awarded to outstanding undergraduate dissertations by Tsinghua University.	Tsinghua University
2020	<b>Overall Scholarship</b> Awarded to students with excellent achievements by Department of Computer Science and Technology, Tsinghua University.	Tsinghua University
2019	<b>Science and Technology Innovation Excellence Scholarship</b> Awarded to students with excellent scientific potential by Department of Computer Science and Technology, Tsinghua University.	Tsinghua University
2019	<b>Silver Prize, 2019 Asia Student Supercomputer Challenge</b> World-wide contest on super-computing.	Dalian, China
2018	<b>Overall Scholarship</b> Awarded to students with excellent achievements by Department of Computer Science and Technology, Tsinghua University.	Tsinghua University
2017	<b>Second Grade Scholarship for Freshman</b> Awarded to students with excellent overall achievements in high school, Tsinghua University.	Tsinghua University
2016	<b>1st Prize, Chinese Physics Olympiad in Provinces</b> Nation-wide contest on physics.	Beijing, China
2016	<b>1st Prize, Pan-Pearl River Delta and Chinese Elite Schools Physics Olympiad</b> Nation-wide contest on physics.	Shenzhen, China

## Projects

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### CPM-2: Large-scale Cost-effective Pre-trained Language Models

JAN. 2021 - JUNE. 2021

- (By the time of release) The largest open-source Chinese pre-trained language model (11B parameters).
- Encoder-decoder architecture. Based on Megatron-LM and DeepSpeed. Language understanding and generation.
- Open Source: <https://github.com/TsinghuaAI/CPM-2-Pretrain>

### EVA: Large-scale Open-domain Chinese Dialogue System

SEP. 2021 - JAN. 2022

- (By the time of release) The largest open-source Chinese dialogue model with pre-training (2.8B parameters).
- Encoder-decoder architecture. Based on DeepSpeed. Open-domain chit-chat.
- Open Source: <https://github.com/thu-coai/EVA>

## Teaching Assistantships

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### Object Oriented Programming

Instructor: Prof. Minlie Huang

### Artificial Neural Networks

Instructor: Prof. Minlie Huang

Tsinghua University

Spring 2022, 2023, 2024

Tsinghua University

Fall 2021, 2022, 2023