

Zhuosheng Zhang

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Research Interests

Natural Language Processing, Pre-trained Language Models, Question Answering, and Dialogue Systems.

Education

2020.9-: Ph.D., Dept. of Computer Science and Engineering, Shanghai Jiao Tong University.
Advisor: Prof. Hai Zhao

2016.9-2020.3: M.S., Dept. of Computer Science and Engineering, Shanghai Jiao Tong University.
Advisor: Prof. Hai Zhao

2012.9-2016.6: B.S., Dept. of Computer Science, Wuhan University.
Advisor: Prof. Haojun Ai

Experience

2022.2-2022.6: Research Intern, Microsoft Research, Redmond, USA, working with Dr. Shuohang Wang, Yichong Xu, Yuwei Fang and Chenguang Zhu.

2021.3-2021.12: Visiting Intern, Langboat Tech, Beijing, China, working with Prof. Ming Zhou.

2019.6-2020.7: Internship Research Fellow, National Institute of Information and Communications Technology (NICT), Kyoto, Japan, working with Prof. Rui Wang, Kehai Chen, Masao Utiyama, and Eiichiro Sumita.

2016.6-2016.9: Data Scientist Intern, IBM China Watson Team, Beijing, China.

2014.6-2015.6: President of IBM Tech Club at Wuhan University, Wuhan, China.

Awards & Honors

2021: Baidu Scholarship (Top-10, worldwide).

2021: Top 100 Chinese Rising Stars in Artificial Intelligence (Top 10 recommended), Baidu Scholar.

2018: Academic Stars of Graduate Students (The only master student winner), Shanghai Jiao Tong University.

2016: National Figures Nomination of College Students (20 total recipients), Ministry of Education of P.R. China.

2015: The CCF Elite Collegiate Award, China Computer Federation.

Academic Service

PC member of ACL, ICLR, NeurIPS, ICML, AACL, EMNLP, AACL, COLING, NAACL, CCL, etc.

Reviewer of ACM Trans. on ALLIP (TALLIP), Neurocomputing, Multimedia Systems, Transactions on Machine Learning Research (TMLR), Neural Computing and Applications, Expert Systems With Applications.

Teaching Assistant: "Natural language understanding (F033569)", Shanghai Jiao Tong University, Spring 2018 & Spring 2019 & Spring 2021.

Tutorials

2021.08: IJCAI-21 Tutorial “Machine Reading Comprehension: The Role of Contextualized Language Models and Beyond”, with Prof. Hai Zhao.

Invited Talks

2021.11: Talk “*Mengzi Lightweight Pre-trained Models*” at Big Model Meetup, with Prof. Ming Zhou.

2021.11: Talk “*Machine Reading Comprehension: The Paradigm of Pre-trained Models*” at MLNLP 2021.

2021.07: Talk “*Machine Reading Comprehension and Dialogue Systems*” at Huawei Shanghai Institute.

2020.10: Talk “*My Way to Reading Comprehension: Self-cognition and Persistence*” at CCL 2020 student workshop.

2020.05: Talk “*Machine Reading Comprehension: The Role of Contextualized Language Models and Beyond*” at the UofA NLP seminar on MRC.

2017.10: Talk “*Fine-grained Embedding for Reading Comprehension*” at the CMRC 2017 workshop in CCL 2017.

Shared Tasks

2021: **CLUE** Leaderboard on Chinese Language Understanding Evaluation (First author)
– The **best** among all submissions.

2021: **ShARC** Leaderboard on Conversational Question Answering (Co-First author)
– The **best** among all submissions.

2021: **Mutual** Leaderboard on Dialogue Reasoning Challenge (Co-First author)
– The **best** among all submissions.

2019-2020: **SQuAD2.0** Leaderboard on Machine Reading Comprehension (First author)
– The **best** models for both single and ensemble settings among all submissions (2020.01.25).
– The **first** to surpass **human benchmark** on both EM and F1 scores with a single model (2019.07-09).

2019: **SNLI** Leaderboard on Language Inference (First author): The **best** among all submissions.

2019: **GLUE** Leaderboard on Language Understanding (First author):
– The **3rd best** among all submissions.
– The **best** among all academic submissions.

2017: **CCL-CMRC 2017**: Chinese Machine Reading Comprehension (First author):
– The **best** single system and the second ensemble system (Silver Medal).

Publications (Selected)

(#: equal contribution)

Journal Articles

- [TASLP'22] *Which Apple Keeps Which Doctor Away? Colorful Word Representations with Visual Oracles*
Zhuosheng Zhang, Haojie Yu, Hai Zhao, Masao Utiyama.
IEEE/ACM Transactions on Audio, Speech, and Language Processing (**TASLP**), 2022
- [TASLP'22] *Syntax-aware Multi-spans Generation for Reading Comprehension*
Zhuosheng Zhang, Yiqing Zhang, Hai Zhao.
IEEE/ACM Transactions on Audio, Speech, and Language Processing (**TASLP**), 2022
- [TASLP'22] *Multi-turn Dialogue Reading Comprehension with Pivot Turns and Knowledge*
Zhuosheng Zhang, Junlong Li, Hai Zhao.
IEEE/ACM Transactions on Audio, Speech, and Language Processing (**TASLP**), 2022

4. [TASLP'21] *DUMA: Reading Comprehension with Transposition Thinking*
Pengfei Zhu, **Zhuosheng Zhang**, Hai Zhao, Xiaoguang Li.
IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP), 2021
5. [TPAMI'21] *SG-Net: Syntax Guided Transformer for Language Representation*
Zhuosheng Zhang, Yuwei Wu, Junru Zhou, Sufeng Duan, Hai Zhao, Rui Wang.
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2021
6. [TPAMI'21] *Text Compression-aided Transformer Encoding*
Zuchao Li, **Zhuosheng Zhang**, Hai Zhao, Rui Wang, Kehai Chen, Masao Utiyama, and Eiichiro .
IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2021
7. [TKDE'21] *Open Named Entity Modeling from Embedding Distribution*
Ying Luo#, Hai Zhao, **Zhuosheng Zhang**#, Bingjie Tang.
IEEE Transactions on Knowledge and Data Engineering (TKDE), 2021
8. [TASLP'19] *Effective Subword Segmentation for Text Comprehension*
Zhuosheng Zhang, Hai Zhao, Kangwei Ling, Jiangtong Li, Shexia He, Guohong Fu.
IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP), 2019

Conference Papers

1. [ACL'22] *Structural Characterization for Dialogue Disentanglement*
Xinbei Ma, **Zhuosheng Zhang**, Hai Zhao.
The 60th Annual Meeting of the Association for Computational Linguistics (ACL 2022).
Rank 1st on the Ubuntu IRC dialogue disentanglement benchmark.
2. [ACL'22] *Tracing Origins: Coreference-aware Machine Reading Comprehension*
Baorong Huang#, **Zhuosheng Zhang**#, Hai Zhao.
The 60th Annual Meeting of the Association for Computational Linguistics (ACL 2022).
3. [ACL'22] *Sentence-aware Contrastive Learning for Open-Domain Passage Retrieval*
BoHong Wu, **Zhuosheng Zhang**, Jinyuan Wang, Hai Zhao.
The 60th Annual Meeting of the Association for Computational Linguistics (ACL 2022).
4. [ACL'22] *Distinguishing Non-natural from Natural Adversarial Samples for More Robust Pre-trained Language Model*
Jiayi Wang, Rongzhou Bao, **Zhuosheng Zhang**, Hai Zhao.
The 60th Annual Meeting of the Association for Computational Linguistics (ACL 2022, Findings).
5. [EMNLP'21] *Smoothing Dialogue States for Open Conversational Machine Reading*
Zhuosheng Zhang#, Siru Ouyang#, Hai Zhao, Masao Utiyama and Eiichiro Sumita.
The 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP 2021).
6. [EMNLP'21] *Span Fine-tuning for Pre-trained Language Models*
Rongzhou Bao, **Zhuosheng Zhang**, Hai Zhao.
The 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP 2021, Findings).
7. [ACL'21] *Structural Pre-training for Dialogue Comprehension*
Zhuosheng Zhang, Hai Zhao.
The 59th Annual Meeting of the Association for Computational Linguistics (ACL 2021).
8. [ACL'21] *Dialogue Graph Modeling for Conversational Machine Reading*
Siru Ouyang#, **Zhuosheng Zhang**#, Hai Zhao.
The 59th Annual Meeting of the Association for Computational Linguistics (ACL 2021, Findings).
Rank 1st on the ShARC leaderboard.
9. [AAAI'21] *Retrospective Reader for Machine Reading Comprehension*
Zhuosheng Zhang, Junjie Yang, Hai Zhao.
The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI 2021).
Rank 1st on the SQuAD2.0 leaderboard.
10. [AAAI'21] *Filling the Gap of Utterance-aware and Speaker-aware Representation for Multi-turn Dialogue*
Longxiang Liu#, **Zhuosheng Zhang**#, Hai Zhao, Xi Zhou, Xiang Zhou.
The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI 2021).
Rank 1st on the MuTual leaderboard.

11. [AAAI'21] *Topic-aware multi-turn dialogue modeling*
Yi Xu, Hai Zhao, **Zhuosheng Zhang**.
The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI 2021).
12. [ICLR'20] *Neural Machine Translation with Universal Visual Representation*
Zhuosheng Zhang, Kehai Chen, Rui Wang, Masao Utiyama, Eiichiro Sumita, Zuchao Li, Hai Zhao.
International Conference on Learning Representations (ICLR 2020).
Spotlight Oral, acceptance rate: 4.16%.
13. [AAAI'20] *Semantics-aware BERT for Language Understanding*
Zhuosheng Zhang#, Yuwei Wu#, Hai Zhao, Zuchao Li, Shuailiang Zhang, Xi Zhou, Xiang Zhou.
The Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI 2020).
Rank 1st on the SNLI leaderboard.
14. [AAAI'20] *SG-Net: Syntax-Guided Machine Reading Comprehension*
Zhuosheng Zhang#, Yuwei Wu#, Junru Zhou, Sufeng Duan, Hai Zhao, Rui Wang.
The Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI 2020).
The first single model to surpass human benchmark on the SQuAD2.0 leaderboard.
15. [EMNLP'20] *LIMIT-BERT: Linguistic Informed Multi-task BERT*
Junru Zhou, **Zhuosheng Zhang**, Hai Zhao.
The 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP 2021, Findings).
16. [ACL'19] *Open Vocabulary Learning for Neural Chinese Pinyin IME*
Zhuosheng Zhang, Yafang Huang, Hai Zhao.
The 57th Annual Meeting of the Association for Computational Linguistics (ACL 2019).
17. [COLING'18] *Modeling Multi-turn Conversation with Deep Utterance Aggregation*
Zhuosheng Zhang#, Jiangtong Li#, Pengfei Zhu, Hai Zhao.
The 27th International Conference on Computational Linguistics (COLING 2018).
Appeared in the Google Scholar 2020 h5-index list (top 1.2%, 4/331 in COLING 2018).
18. [COLING'18] *One-shot Learning for Question-Answering in Gaokao History Challenge*
Zhuosheng Zhang, Hai Zhao.
The 27th International Conference on Computational Linguistics (COLING 2018).
19. [COLING'18] *Subword-augmented Embedding for Cloze Reading Comprehension*
Zhuosheng Zhang#, Yafang Huang#, Hai Zhao.
The 27th International Conference on Computational Linguistics (COLING 2018).
Rank 1st on the CCL-CMRC 2017 shared task (single model).
20. [COLING'18] *Lingke: A Fine-grained Multi-turn Chatbot for Customer Service*
Pengfei Zhu, **Zhuosheng Zhang**, Jiangtong Li, Yafang Huang, Hai Zhao.
The 27th International Conference on Computational Linguistics (COLING 2018), Demo.

Preprints

1. *Machine Reading Comprehension: The Role of Contextualized Language Models and Beyond*
Zhuosheng Zhang, Hai Zhao, Rui Wang.
arXiv preprint arXiv:2005.06249, 2020.
2. *Advances in Multi-turn Dialogue Comprehension: A Survey*
Zhuosheng Zhang, Hai Zhao.
arXiv preprint arXiv:2103.03125, 2020.
3. *Mengzi: Towards Lightweight yet Ingenious Pre-trained Models for Chinese*
Zhuosheng Zhang, Hanqing Zhang, Keming Chen, Yuhang Guo, Jingyun Hua, Yulong Wang, Ming Zhou.
arXiv preprint arXiv:2110.06696, 2021.
Rank 1st on the CLUE leaderboard.

Student Advising

(* I am co-advising undergraduate students at SJTU with Prof. Hai Zhao.)

Siru Ouyang (Undergraduate Student, 2020-2021)

Jialin Chen (Undergraduate Student, 2020-2021)

Yuchen He (Undergraduate Student, 2021 → MS Student at SJTU, 2022)

Junlong Li (Undergraduate Student, 2020 → MS Student at SJTU, 2022)

Longxiang Liu (Undergraduate Student, 2020 → MS Student at ICT/CAS, 2021)

Yuwei Wu (Undergraduate Student, 2019 → MS Student at CMU, 2021)

Open Sources (1k+ GitHub stars)

SemBERT: a semantics-aware language understanding toolkit.

<https://github.com/cooelf/SemBERT>

AwesomeMRC: an overview of MRC research, and SOTA implementation for SQuAD2.0 Challenge.

<https://github.com/cooelf/AwesomeMRC>

DUA: a deep utterance aggregation model for conversational response selection task.

<https://github.com/cooelf/DeepUtteranceAggregation>

See all my projects at: <https://github.com/cooelf>.

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