Wangchunshu Zhou

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Education

- **Beihang University** — **Beijing, China**
  Master in Computer Science — *Sep. 2018 - Jan. 2021 (Expected)*
  Advisor: Prof. Ke Xu
- **Beihang University** — **Beijing, China**
  B.S. in Information and Computing Science (Sino-French Engineering School) — *Sep. 2014 - Jul. 2018*

Research Interest

My research interests include Deep Learning in NLP, Natural Language Generation (NLG), Reinforcement Learning and Generative Adversarial Nets in NLG, (Pretrained) Language Modeling and Transfer Learning, Emergent Communication, and Social Analysis. Specifically, I am currently working on projects including Grammatical Error Correction, Neural Text Style Transfer, Dialogue Systems Pretraining Language Models, and Neural Fake News Detection.

Publications

- **Improving Grammatical Error Correction with Machine Translation Pairs.**
  - *Wangchunshu Zhou*, Tao Ge, Chang Mu Ke Xu, Furu Wei, Ming Zhou.
  - *Submitted* to The 58th annual meeting of the Association for Computational Linguistics. (ACL, 2020)
  - We propose to use a pair of Machine Translation models with different qualities to synthesize pseudo-parallel data for pretraining Grammatical Error Correction models.
- **Hierarchical Summary to Article Generation.**
  - *Wangchunshu Zhou*, Tao Ge, Ke Xu, Furu Wei, Ming Zhou.
  - *Submitted* to The 58th annual meeting of the Association for Computational Linguistics. (ACL, 2020)
  - We introduce a hierarchical model to generate long articles based on short summaries by first generating sketches in an intermediate length, and propose techniques to bridge the gap between training and inference of the model and a novel evaluation metric for conditional long text generation tasks.
- **Scheduled DropHead: A Regularization Method for Transformer Models.**
  - *Wangchunshu Zhou*, Tao Ge, Ke Xu, Furu Wei, Ming Zhou.
  - *Submitted* to The 58th annual meeting of the Association for Computational Linguistics. (ACL, 2020)
  - We introduce DropHead, a structured dropout mechanism for the multi-head attention mechanism in the transformer models, and a specifically designed dropout rate schedule for DropHead.
- **Inverse Adversarial Training for Better Dialogue History Modeling and Avoiding Generic Response.**
  - *Wangchunshu Zhou*, Chenle Li, Ke Xu, Lei Yu.
  - *Submitted* to The 58th annual meeting of the Association for Computational Linguistics. (ACL, 2020)
  - We introduce an Inverse Adversarial Training algorithm for better dialogue history modeling and avoiding generic responses for neural dialogue systems.
- **Interpretable Dialogue Personalization without Explicit Persona Description via Persona Detection.**
  - *Wangchunshu Zhou*, Chenle Li, Ke Xu, Lei Yu.
  - *Submitted* to The 58th annual meeting of the Association for Computational Linguistics. (ACL, 2020)
  - We propose a novel persona detection module which enables neural dialogue models to perform dialogue personalization for unseen speakers without explicit persona description during inference.
- **Self-Adversarial Learning with Comparative Discrimination for Text Generation.**
  - *Wangchunshu Zhou*, Tao Ge, Ke Xu, Furu Wei, Ming Zhou.
  - *Submitted* to the Eighth International Conference on Learning Representations. (ICLR, 2020) (8,8,3)
  - We propose to integrate the self-play mechanism, which is commonly used in the RL community, into training of GANs to reduce the reward sparsity and mode collapse problem and make training more stable.
- **Learning to Compare for Better Training and Evaluation of Open Domain Text Generation Models.**
  - *Wangchunshu Zhou*, Ke Xu.
  - The Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI, 2020) (Oral).
  - We proposed a novel "Learning to Compare" paradigm and employ the skill rating system, which is commonly used to evaluate human chess players' skill, to evaluate the performance of open domain text generation systems.
- **Learning to Compare for Better Training and Evaluation of Open Domain Text Generation Models.**
  - *Wangchunshu Zhou*, Tao Ge, Ke Xu, Furu Wei, Ming Zhou.
  - The 57th annual meeting of the Association for Computational Linguistics. (ACL, 2019)
  - We proposed a novel lexical substitution based on pretrained masked lanuage models (e.g. BERT) to automatically propose substitute candidates and rank them without relying on external lexical resources.

Research Experiences

- **Research Intern at Microsoft Research Asia** — **Beijing, China**
  Natural Language Computing Group, Mentor: Dr. Tao Ge — *Dec. 2018 - Present*
  Working on Natural Language Generation (NLG).
- **Research Student at NLSDE Lab** — **Beijing, China**
  Natural Language Processing Group, Advisor: Prof. Ke Xu — *Aug. 2018 - Present*
  Working on Natural Language Generation (NLG).

Services

- Student Volunteer: ACL 2019
- Review Assistant: EMNLP 2019

Honors and Awards

- Scholarship of Academic Excellence (Master), Beihang University. 2018, 2019 (top 15%)
- The CASC Award, Beihang University. 2017 (top 3)
- Scholarship of Academic Excellence (Bachelor), Beihang University. 2016, 2017 (top 20%)