

# Zekang Li

Profile websites: [LinkedIn](#), [Github](#), [Google Scholar](#), [Personal](#)

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## BIOGRAPHY

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My research interests lie within deep learning for Natural Language Processing, particularly in grounded language generation and conversational AI. I am also involved in cognitive science and its application in language understanding and generation.

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## SKILLS SUMMARY

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- **Skills:** Natural Language Processing, Dialogue system, Deep Learning, Web Development
- **Programming Languages & Tools:** Python, C/C++, LaTeX, PyTorch, Tensorflow
- **Languages:** Chinese (native), English (limited proficiency)

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## EDUCATION

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- **Institute of Computing Technology, Chinese Academy of Sciences** Beijing, China  
*Master Candidate of Computer Science, advised by Yang Feng* *Sep 2019 – June 2022*
- **Huazhong University of Science and technology (HUST)** Wuhan, China  
*Bachelors of Electronic Information Engineering ; GPA: 3.89/4.0* *Sep 2015 – June 2019*

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## RESEARCH EXPERIENCE

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- **WeChat AI, Tencent Inc** Beijing, China  
*Research Intern, advised by Fandong Meng, Jinchao Zhang and Cheng Niu* *Nov 2018 - Present*
  - **Knowledge Powered Dialogue System:** It is important for dialogue system to use universal background knowledge and common senses.
    - \* Document Grounded Conversations. A long paper accepted by ACL 2019.
    - \* Audio Visual Scene-aware Dialog. Work in progress.
  - **Dialogue Coherence and Diversity:** Improve the diversity and relevance of dialogue generation with VAE methods and exemplar augmentation. A long paper submitted to EMNLP 2019.
  - **WeChat Reading Dataset:** Work in progress.
    - \* Collect book content from WeChat Reading and build a large-scale book understanding dataset.
    - \* Collect highlights and readers' comments and build a large-scale fine-grained sentiment comments generation dataset.
- **Wuhan National Laboratory for Optoelectronics, HUST** Wuhan, China  
*Research Assistant, advised by Prof. Ke Zhou, cooperate with Tencent Cloud.* *Oct 2017 - June 2018*
  - **Cloud Database Autotune:** Use deep reinforcement learning to tune cloud database automatically. Our system significantly outperforms the state-of-the-art tuning tools and DBA experts. And our paper is accepted by SIGMOD 2019.
    - \* Analyze cloud database knobs to find which knobs affect performance a lot.
    - \* Propose the idea of using deep reinforcement learning to find the optimal configurations in high-dimensional continuous space.
    - \* Devise DQN-based and DDPG-based models to tune cloud database knobs and design rewards for deep reinforcement learning models.

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## PROFESSIONAL EXPERIENCE

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- **Dian Group, HUST** Wuhan, China  
*AI Group Leader* *June 2017 - June 2019*
  - **AI Group Leader:** Founder of AI Group in Dian Group. AI Group contains 20+ undergraduate students who are interested in AI (natural language processing, computer vision, machine learning, deep learning, reinforcement learning). We cooperate with famous companies on commercial or research projects.
    - \* AIbot: An Intelligent Customer Service Robot (Beibei Group)
    - \* AI Mooc: Build an intelligent question answering system for Mooc. We apply for the National Natural Science Funds.
    - \* AI in 5G: Using Deep Reinforcement Learning to optimize Network Access Control in 5G. (Intel Inc)

## SELECTED PROJECTS

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- **AIbot: An Intelligent Customer Service Robot** Wuhan, China  
*Team Leader, cooperate with Beibei Group* *Mar 2018 - Oct 2018*
  - **Project Introduction:** Beibei Group is the biggest e-commerce company for mother and baby in China. Lead a team of 12 undergraduate students to develop a stable, learnable and reliable intelligent customer service robot to replace the original commercial system. The response accuracy and customer's satisfaction of our system outperforms the original commercial one (Yibot). Now AIbot serves hundreds of millions customers.
  - **Models:** We use classification models to select the most proper responses.
  - **Active Learning:** There are much noise in the training data so that we train a discriminator to identify the bad cases and annotate them by experts. Annotated data will replace the bad cases in the training process.
  - **Offline Training and Online Serving:** Use X-learning distributed training platform to update our model everyday and use Kafka to meet high concurrency requirements for online serving.
- **Public Sentiment Analysis System** Wuhan, China  
*Core member* *Sep 2017 - Dec 2017*
  - **Data Collection:** Build a distributed spider system using Scrapy+MongoDB+Redis to crawl information from Weibo which is the biggest social media in China.
  - **Opinion Extraction:** Analyze the main opinion of netizens for public events using traditional natural language processing methods, such as TF-IDF, LDA, LSI, etc.
  - **Sentiment Analysis:** Use deep learning methods like TextLSTM to analyze the change of public sentiment as time flows.

## SELECTED AWARDS

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1. Winner of DSTC8 Audio-Visual Scene-Aware Dialogue Challenge. February 2020
2. Excellent Graduate and Excellent Bachelor Thesis, HUST June 2019
3. Outstanding scholarships for Student Cadre and Merit Student Oct 2016, 2017
4. 2018 Tencent Rhino-Bird Elite Training Program June 2018
5. Meritorious Winner in MCM 2018 (top 8%) April 2018
6. Second Prize in CCF Big Data & Computing Intelligence Contest (top 36 / 14988) Dec 2017
7. Second place in 1st HackxFdu Hackathon (2/80) Oct 2016

## PUBLICATIONS

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1. **Zekang Li**, Zongjia Li, Jinchao Zhang, Yang Feng, Cheng Niu, Jie Zhou. Blind Review. AAAI 2020 DSTC8 workshop. (**1st Rank system in DSTC8 Audio-Visual Scene-Aware Dialogue Challenge**)
2. **Zekang Li**, Cheng Niu, Fandong Meng, Yang Feng, Qian Li, Jie Zhou. Incremental Transformer with Deliberation Decoder for Document Grounded Conversations. ACL 2019 (Oral Long Paper).
3. **Zekang Li\***, Zeyang Lei\*, Jinchao Zhang, Fandong Meng, Yang Feng, Cheng Niu, Jie Zhou. Blind Review. ACL 2020.
4. **Zekang Li\***, Yong Shan\*, Jinchao Zhang, Fandong Meng, Yang Feng, Cheng Niu, Jie Zhou. Blind Review. ACL 2020.
5. Jinchao Zhang, Fandong Meng, **Zekang Li**, Cheng Niu, Jie Zhou. Blind Review. ACL 2020
6. Qian Li, Hui Su, CHENG NIU, Daling Wang, **Zekang Li**, Shi Feng and Yifei Zhang. Answer-Supervised Question Reformulation for Enhancing Conversational Machine Comprehension. EMNLP 2019 (Machine Reading for Question Answering Workshop).
7. Ji Zhang, Yu Liu, Ke Zhou, Guoliang Li, Zhili Xiao, Bin Cheng, Jiashu Xing, Yangtao Wang, Tianheng Cheng, Li Liu, Minwei Ran, **Zekang Li**. An End-to-End Automatic Cloud Database Tuning System Using Deep Reinforcement Learning. SIGMOD 2019.