Zhaohui LI

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EDUCATION

School of Computer and Control Engineering, Nankai University, China Aug 2012-Jul 2016

Bachelor of Computer Science: Major GPA: *3.51/4.0.*

Awards: Best Graduation Thesis Candidate (Score *96,* Top *0.5%*), "GongNeng" Scholarship of Nankai University (Top *5%*).

EMPLOYMENT

Institute of Computing Technology, Chinese Academy of Science, Beijing, China Jul 2016-Present

CAS Key Laboratory of Network Data Science and Technology

Research Assistant of *Professor Jun Xu.*

RESEARCH INTEREST

My research interest resides at *Reinforcement Learning Models* and *Nature Language Processing*. And I am now focusing on *Machine Reading Comprehension* task, which based on *Knowledge-based Deep Reinforcement Learning* models. Moreover, I hope my research results can be applied to *Machine Learning Applications* in the *Health Care* and *Sport* realms and can benefit more and more people all over the world.

Machine Reading Comprehension; Knowledge-based NLP; Deep Reinforcement Learning.

RESEARCH EXPERIENCE

QUESTION ANSWERING

Extract Key Information for Machine Reading Comprehension | ICT | Research Assistant Dec 2017-Oct 2018

Advisor: Professor Jun Xu, CAS Key Laboratory of Network Data Science and Technology, ICT

- Surveyed *MRC* methods and *Deep Reinforcement Learning* models in NLP.
- Developed special attention mechanism to get better questions and passages representations.
- Improved the pipeline models to an end-to-end model and optimized the main content selection MDP by adding a window.
- Implemented experiment on MS-MARCO dataset and archived high performance.
- Paper: *"Teach Machines to Learn Main Content for Machine Reading Comprehension"* was accepted by ***AAAI'19***. ***(1st author)***

Multi-Passage Machine Reading Comprehension Pipeline| ICT | Research Assistant Oct 2017-May 2018

- Advisor: Professor Jun Xu, CAS Key Laboratory of Network Data Science and Technology, ICT
- Surveyed *Question Answering (QA)* and *Machine Reading Comprehension (MRC)* methods.
- Proposed a model that could identify the main content from passages through Markov Decision Process.
- Implemented a pipeline (Select passage->Select sentence->Predict answer) for a Chinese MRC task DuReader.
- Paper: *"Hierarchical answer selection framework for Multi-passage Machine Reading Comprehension"* was accepted by ***CCIR'18*** as Best paper candidate. ***(1st author)***

SENTIMENT ANALYSIS

Word Vector Modeling for Sentiment Analysis | Nankai University | Research Assistant Jan 2014-Dec 2014

Advisor: Jie Liu, professor at School of Computer Science, Nankai University

- Surveyed Word Vector Modeling method and analysis statistical attributes over Amazon Product Review Dataset.
- Improved *Word2Vec* by adding positive/negative label which represents words' sentiment information on product reviews.
- Acquired the best *F1* score in the Competition of *NLPCC2014*.
- Paper: *Word Vector Modeling for Sentiment Analysis of Product Reviews* was accepted by ***NLPCC'2014***. ***(2nd author)***

MACHINE LEARNING SYSTEM

BDA: big data analysis as a service (http://159.226.40.104:18080/dev/)

Mentor: Jun Xu, professor at CAS Key Laboratory of Network Data Science and Technology, ICT Aug 2015-Dec 2017

- Responsible for the survey of Big Data Analysis System.
- Established and implemented an efficient, high scalability data analysis system based on HDFS, Spark and using Oozie to create a pipeline between HDFS and Spark.
- Core member of designing *BDA Studio*, which is a HCI to enable user to modify model on website visual interface.
- Developed BDA to an open source version system *EasyML* and created corresponding Docker images and use Weave to enable communication across Docker containers. (***gained 1750 Stars on GitHub***)
- Paper: *Ease the Process of Machine Learning with Dataflow* was accepted by ***CIKM'2016*** as best Demo Paper Candidate. ***(1st undergraduate author)***

Global Information Hunter: A news data capture, analysis and visualization system, which consists of Natural Language Understanding Engine, Knowledge Graph Engine, API Layer and Web App Layer.

Mentor: Jiafeng Guo, professor at CAS Key Laboratory of Network Data Science and Technology, ICT Jan 2018-Present

- Team leader of Knowledge Graph Engine and API Layer (5 student members), one of the mentors of NLP Engine (2 mentors and 7 student members). And responsible for code review works.
- Designed the structures and methods of 3 parts in NLP Engine, which are Sequence Tagging, Document Classification and Sentiment Analysis.
- Established an Entity Knowledge Graph Schema and an Event Graph Schema, based on which Graph computing algorithms and API functions are implemented.

PUBLICATIONS

- **Zhaohui Li**, Yue Feng, Jun Xu, YanYan Lan, Jiafeng Guo, Yue Feng, Xueqi Cheng. Teaching Machines to Extract Main Content for Machine Reading Comprehension. The 33th AAAI Conference on Artificial Intelligence (AAAI'19 accepted).
- **Zhaohui Li**, Jun Xu, YanYan Lan, Jiafeng Guo, Yue Feng, Xueqi ChengHierarchical Answer Selection Framework for Multi-passage Machine Reading Comprehension. The 24nd China Conference on Information Retrieval. Springer, Cham, 2018: 93-104. (CCIR'18 ***best paper candidate***).
- Tianyou Guo, Jun Xu, Xiaohui Yan, Jianpeng Hou, Ping Li, **Zhaohui Li**, Jiafeng Guo, and Xueqi Cheng. Ease the Process of Machine Learning with Dataflow. Proceedings of the 25th ACM International Conference on Information and Knowledge Management (CIKM'16). Indianapolis, USA, pp. 2437-2440, 2016. ***(1st undergraduate author)***
- Yuan Wang, **Zhaohui Li**, Jie Liu, Zhicheng He, Yalou Huang, Dong Li. Word Vector Modeling for Sentiment Analysis of Product Reviews. The conference on Natural Language Processing and Chinese Computing (NLPCC'14). Springer, Berlin, Heidelberg, 2014: 168-180.

AWARDS AND HONORS

"GongNeng" Scholarship of Nankai University (10 out of 200 students) Dec 2013

Interdisciplinary Contest in Modeling, "H" Award| Team member Feb 2015

Captain of College Soccer Team (silver medal) | Nankai University | Team Leader May 2014-Jul 2015

SKILLS

Expert in *Reinforcement Learning*

Familiar with Deep Learning and TensorFlow

Programming Languages: Python, C++