Xiao Liu

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RESEARCH INTERESTS

Information Extraction; Text Mining; Event Extraction & Schema Induction; Knowledge-boosted Application; Application of NLP & Machine Learning

EDUCATION

Beijing Institute of Technology, Beijing, China

- **Ph.D. Candidate**, Computer Science — Sep 2017 –
  - Adviser: *Prof. Heyan Huang*
  - Topic: *Event extraction on low-resources domains, including automatically inducting event schemas using unsupervised approachs and jointly extracting multiple events in texts*
- **M.S.**, Computer Science (Rank 5/192) — Sep 2016 – Jun 2017
  - Adviser: *Prof. Heyan Huang*
  - *Successive postgraduate and doctoral program*
- **B.S.**, Computer Science (Rank 4/220) — Sep 2012 – Jun 2016
  - ***Outstanding Graduates at BIT and in Beijing***

Singapore University of Technology and Design, Singapore

- **Joint Ph.D. student**, Information Science Technology and Design — Aug 2018 – Mar 2019
  - Host: *Prof. Yue Zhang* and *Prof. Jun Sun*
  - Topic: *Information extraction using neural latent variable models and variational inferences*

Nanyang Technological University, Singapore

- **Joint Ph.D. student**, School of Computer Science and Engineer — Mar 2019 – Sep 2019
  - Host: *Prof. Erik Cambria* and *Prof. Yue Zhang*
  - Topic: *Event applications, knowledge-based sentiment analysis and stock market prediction*

EXPERIENCE

Microsoft Research Asia, Beijing, China

- **Research Intern**, Data Mining and Enterprise Intelligence Group — Dec 2016 – Nov 2017
  - Worked with Dr Jun Yan and Yaobo Liang on semantic similarty computation and generation.
  - Participated in the FAQ Retrieval project for Pfizer that provides every input question with an answer by retrieving similar standard questions with well-written answers.
  - Built a high-recall filter for top-n similar question-question pairs.
  - Built pair-wise CNNs to classify the question intents for boosting question matching.
  - Built paraphrase generation models by synonyms replacement with language models and beam search.
  - Built a deep learning paraphrase generation model based on an NMT seq2seq framework.

Netease Youdao, Beijing, China

- **Research and Development Intern**, Machine Translation Group — Nov 2015 – Dec 2016
  - Improved the result of the Japanese-to-Chinese machine translation service by 4% point increment in BLEU.
  - Cleaned corpus from different sources, optimized word segmentation and ordering strategies, enlarged bilingual and monolingual corpus, trained larger language models, and deployed them into the online production environment.
  - Designed the framework and built the first version of parallel sentence pairs crawler with switchable alignment methods on Spark clusters.

PROFESSIONAL SERVICES

Program Committee Member / Reviewer

- **Conferences:** *ACL 2021, ACL 2020, EMNLP 2021, EMNLP 2020, EACL 2021, NAACL 2021, AAAI 2021, NLPCC 2021*

Secondary Reviewer

- **Conferences:** *ACL 2019, ACL 2018, EMNLP 2019, EMNLP 2018, COLING 2018, CCL 2017, NLPCC 2016*

PUBLICATION

[1] **Xiao Liu**, Heyan Huang, Yue Zhang. Open Domain Event Extraction Using Neural Latent Variable Models. *In Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics (**ACL**), Florence, Italy, July 28 - August 2, 2019.* **Long Oral**

[2] **Xiao Liu**, Zhunchen Luo, Heyan Huang. Jointly Multiple Events Extraction via Attention-based Graph Information Aggregation. *In Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing (**EMNLP**), Brussels, Belgium, October 31 - November 4, 2018.* **Long Oral**

[3] Qingkai Min, Libo Qin, Zhiyang Teng, **Xiao Liu**, Yue Zhang. Dialog State Tracking Using Neural Latent Variable Models. *In Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence (**IJCAI**), 2020.*

[4] Changsen Yuan, Heyan Huang, Chong Feng, **Xiao Liu**, Xiaochi Wei. Distant Supervision for Relation Extraction with Linear Attenuation Simulation and Non-IID Relevance Embedding. *Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI**), Honolulu, Hawaii, USA, January 27-February 1, 2019.*

[5] Zhunchen Luo, **Xiao Liu**. Real-time Scholarly Retweeting Prediction System. *In Proceedings of the 27th International Conference on Computational Linguistics (**COLING**), Santa Fe, New Mexico, USA, August 20-26, 2018.*

[6] Wenhan Chao, Ping Wei, Zhunchen Luo, **Xiao Liu**, Guobin Sui. Selective Expression for Event Coreference Resolution on Twitter *In Proceedings of the 2019 International Joint Conference on Neural Networks (**IJCNN**), Budapest, Hungary, July 14-19, 2019.*

[7] Zhunchen Luo, Jun Chen, **Xiao Liu**. Real-Time Scientific Impact Prediction in Twitter. *In 2018 CCF Conference on Big Data. **Big Data 2018**. Part of the Communications in Computer and Information Science, vol 945. Springer, Singapore.*

SELECTED OPEN-SOURCE PROJECTS

★ *represents the number of github stars.*

- **JMEE** ★187 *https://github.com/lx865712528/EMNLP2018-JMEE*
  A neural sequence labeling framework with graph convolution network layer to jointly extract multiple events in a sentence. It gives the best performance on the event extraction task of the ACE 2005 dataset in 2018.
- **ODEE** ★85 *https://github.com/lx865712528/ACL2019-ODEE*
  A neural-extended unsuoervised schema induction and open domain event extraction framework which supports incrementally learning. A business report corpus is published along with this framework.

TEACHING

Beijing Institute of Technology, Beijing, China

- **Teaching Assistant** Sep 2014 – Jan 2015
  - Algorithm and Data Structure
- **Teaching Assistant** Sep 2017 – Nov 2017
  - Selected Topics In New Technology for Computer

HONORS AND AWARDS

High-level Joint Doctoral Students Scholarship, China — Aug 2018 – Sep 2019

- China Scholarship Council *No. 201806030142*
- Fully funded high-level Ph.D. students for jointly studying outside China offically.

Beijing Outstanding Graduates, Beijing — Jun 2016

- This award program recognizes undergraduate students in Beijing universities who show outstanding grades and potential in their studies.

Outstanding Students Award, BIT — 2012 – 2019

- Six times.
- Beijing Institute of Technology Annual Award and Honor. For rewarding excellent (top 5%) students in BIT in the academic year.

China Century Group Scholarship — 2014

- Sponsor and award 4 undergraduate students and 2 postgraduate students who major in computer science every year in BIT by China Century Group.

First-class Ph.D. Academic Scholarship, BIT — 2017 – 2019

- Two times.
- This award program recognizes top 5 Ph.D. students majored in computer science every year.

First-class M.S. Academic Scholarship, BIT — 2016

- This award program recognizes top 30 master students majored in computer science every year.

First-class Undergraduate Academic Scholarship, BIT — 2013 – 2016

- Four times.
- As for undergraduate student, select top 5% by last semester's GPA.

COMPETITIONS AND HACKATHONS

Rank 1st in the NLPCC 2021 Sharedtask 3 — Jun 2021

- The sharedtask 3 in NLPCC 2021 is about Sub-event Identification, whose goal is to build an Information Extraction system that can quickly adapt to a new occurring sub-event.
- The team I lead won the championship, outperforming the second place 1.88% in accuracy.

Gold Medal in CCPC Regional — Oct 2016

- The 2nd China Collegiate Programming Contest Regional Hefei Onsite
- The rules and difficulities are the same to the ACM/ICPC Regional contests.

Bronze Medal in ACM/ICPC Regional — Oct 2014

- The 39th ACM/ICPC Regional Beijing Onsite

Bronze Medal in ACM/ICPC Regional — Dec 2014

- The 39th ACM/ICPC Regional Shanghai Onsite

ACTIVITIES AND ORGANIZATIONS

Association of Programming and Algorithms, BIT

- **Co-founder** — Sep 2013 – Jun 2014
  - Organize and invite programming contest experts to deliver lectures.
  - Host Freshman Enrollment Programming Contest in the end of the first semester every year.

Annual Programming Contest, BIT

- **Problem Provider and Onsite Contest Judge** — May 2015 – May 2017
  - Provided several problems for the contests and verify all the selected problems.
  - Judged program solutions and did the real time Q&A about the problem descriptions during the contests.

PROGRAMMING LANGUAGES

- Python, C/C++, LaTeX, Java, Scala, Bash under Linux/Unix/Windows.
- PyTorch, Tensorflow, Keras.

- ...