# Manling Li

Room 1115, Thomas M. Siebel Center for Computer Science, Urbana, IL 61801

(+1) 518-961-2060 | manling2@illinois.edu | limanling.site | limanlingcs@outlook.com

## Educations

**University of Illinois at Urbana-Champaign, Urbana, Illinois, U.S.**          *08/2019 - Present*
- Ph.D. in Computer Science, at Blender NLP Lab. Advisor: Prof. Heng Ji

**Rensselaer Polytechnic Institute, Troy, New York, U.S.**          *08/2018 - 08/2019*
- Ph.D. in Computer Science, at Blender NLP Lab. Advisor: Prof. Heng Ji

**Insititute of Computing Technology, Chinese Academy of Sciences, Beijing, China**          *08/2015 - 06/2018*
- M.S. in Computer Science and Technology, at CAS Key Laboratory of Network Data Science and Technology. Advisor: Prof. Yuanzhuo Wang

**University of Science and Technology Beijing, Beijing, China**          *08/2011 - 06/2015*
- B.E. in Computer Science (Internet of Things), at School of Computer and Communication Engineering
- B.M. in Information Management and Information Systems (minor), at School of Economics and Management

## Research Interest

**Natural Language Processing**, with special focus on Multi-modal Knowledge Extraction, Inference, and Generation

## Publications

| | |
|---|---|
| ACL'20 | ***Cross-media Structured Common Space for Multimedia Event Extraction***. Manling Li\*, Alireza Zareian\*, Qi Zeng, Spencer Whitehead, Di Lu, Heng Ji, Shih-Fu Chang. The 58th Annual Meeting of the Association for Computational Linguistics |
| ACL'20 | ***GAIA: A Fine-grained Multimedia Knowledge Extraction System***. Manling Li, Alireza Zareian, Ying Lin, Xiaoman Pan, Spencer Whitehead, Brian Chen, Bo Wu, Heng Ji, Shih-Fu Chang, Clare R. Voss, Dan Napierski, Marjorie Freedman. The 58th Annual Meeting of the Association for Computational Linguistics (demo) |
| TAC KBP'19 | ***GAIA at SM-KBP 2019 - A Multi-media Multi-lingual Fine-Grained Knowledge Extraction and Hypothesis Generation System***. Manling Li, Ying Lin, , etc. Text Analysis Conference Knowledge Base Population (TAC-KBP) Workshop 2019 |
| TAC KBP'19 | ***A Baseline Fine-Grained Entity Extraction System for TAC-KBP2019***. Ying Lin, Xiaoman Pan, Manling Li, Heng Ji , etc. Text Analysis Conference Knowledge Base Population (TAC-KBP) Workshop 2019 |
| ACL'19 | ***Keep Meeting Summaries on Topic: Abstractive Multi-Modal Meeting Summarization***. Manling Li, Lingyu Zhang, Heng Ji, Rich Radke. The 57th Annual Meeting of the Association for Computational Linguistics, pp.2190–2196 |
| NAACL'19 | ***Multilingual Entity, Relation, Event and Human Value Extraction***. Manling Li, Ying Lin, Joe Hoover, Spencer Whitehead, Clare R. Voss, Morteza Dehghani, Heng Ji. The 2019 Annual Conference of the North American Chapter of the Association for Computational Linguistics (demo), pp.110–115 |
| ACM MMSys'19 | ***The Unobtrusive Group Interaction (UGI) Corpus***. Indrani Bhattacharya, Michael Foley, Ni, Tongtao Zhang, Christine Ku, Cameron Mine, Manling Li, Heng Ji, etc. ACM Multimedia Systems Conference 2019 (dataset track), pp.249-254 |
| TAC KBP'18 | ***GAIA - A Multi-media Multi-lingual Knowledge Extraction and Hypothesis Generation System***. Tongtao Zhang, Ananya Subburathinam, Ge Shi, Lifu Huang, Di Lu, Xiaoman Pan, Manling Li, Boliang Zhang, Qingyun Wang, Spencer Whitehead, Heng Ji, etc. Text Analysis Conference Knowledge Base Population (TAC-KBP) Workshop 2018 |
| WWW'18 | ***Hierarchical Types Constrained Topic Entity Detection for Knowledge Base Question Answering***. Yunqi Qiu, Manling Li, Yuanzhuo Wang, Yantao Jia, Xiaolong Jin. The 27th International World Wide Web Conference, pp.35-36 |
| AAAI'18 | ***Path-Based Attention Neural Model for Fine-Grained Entity Typing***. Denghui Zhang, Manling Li, Pengshan Cai, Yantao Jia, Yuanzhuo Wang. The 32nd AAAI Conference on Artificial Intelligence, pp.8179-8180 |
| IEEE Trans | ***Link Prediction in Knowledge Graphs: A Hierarchy-Constrained Approach***. Manling Li, Yuanzhuo Wang, Denghui Zhang, Yantao Jia, Xueqi Cheng. IEEE Transactions on Big Data, pp.1-14 |
| WI'17 | ***Efficient Parallel Translating Embedding For Knowledge Graphs***. Denghui Zhang, Manling Li, Yantao Jia, Yuanzhuo Wang, Xueqi Cheng. IEEE/WIC/ACM International Conference on Web Intelligence 2017, pp.460-468 |
| TAC KBP'16 | ***OpenKN at TAC KBP 2016***. Manling Li, Xinlei Chen, Yantao Jia, Yuanzhuo Wang, etc. TAC KBP Workshop 2016 |
| WWW'16 | ***Hierarchy-Based Link Prediction in Knowledge Graphs***. Manling Li, Yantao Jia, Yuanzhuo Wang, Jingyuan Li, Xueqi Cheng. The 25th International World Wide Web Conference, pp.77-78 |

| | |
|---|---|
| AAAI'16 | ***Predicting Links and Their Building Time: A Path-Based Method***. Manling Li, Yantao Jia, Yuanzhuo Wang, Zeya Zhao, Xueqi Cheng. The 30th AAAI Conference on Artificial Intelligence, pp.4228-4229 |
| Patent | ***An Ontology Alignment Algorithm Based on Knowledge Graph Embedding***. <u>1st student author</u>. No. CN108694201A |
| Patent | ***A Relation Inference System Based on Knowledge Graph Embedding***. <u>1st student author</u>. No. CN106909622A |
| Patent | ***A Tag Inference System Based on Knowledge Graph Embedding***. <u>2nd student author</u>. No.CN107391577A |
| Patent | ***A Fine-Grained Classification Method for Knowledge Base***. <u>2nd student author</u>. No. CN104615687B |
| Patent | ***An Attribute Extraction Method for Web Pages***. <u>2nd student author</u>. No. CN104636466A |

# Projects

### Multi-media Event Extraction ($M^2E^2$) with Structured Common Representation
*04/2019 - Present*
*DARPA AIDA Program* — *Supervisor: Heng Ji, Shi-Fu Chang*
- Proposed **multimedia event extraction** task by extracting events from both modalities, and organized to annotate a testing dataset.
- Generated a role-driven attention graph based on imSitu (Situation Recognition dataset).
- Built a **structured cross-media common space**, encoding Abstract Meaning Representation (AMR) graph and attention graph by GCN.

### Multi-media Meeting Summarization
*08/2018 - Present*
*NSF PFI:BIC Project Cognitive Environments for Group Meeting Facilitation* — *Supervisor: Heng Ji, Rich Radke*
- Proposed a **Multi-modal Pointer-Generator** using multi-modal hierarchical attention by topic segmentation and visual focus of attention.
- Analyzed ASR transcripts quality by keyphrase extraction. Coauthored a paper about a multimedia meeting dataset (ACM MMSys 2019).

### GAIA: A Multi-media Multi-lingual Fine-grained Knowledge Extraction System
*08/2018 - 08/2019*
*TAC Streaming Multimedia Knowledge Base Population (SM-KBP) Task1 in 2018, 2019* — *Supervisor: Heng Ji, Shi-Fu Chang*
- Led to develop a **fine-grained knowledge extraction** system. Incorporated multimedia event extraction.
- Generated provenance for **human hypothesis**, and assisted in refining system output knowledge base using hypothesis.
- Completed an **entity-relation graph search demo** and **timeline demo**. Presented at TAC KBP 2018 Workshop and NAACL 2019 demo.

### Knowledge Graph Construction and Inference for Videos
*06/2016 - 07/2017*
*Huawei Research Center Collaborative Project* — *Supervisor: Yuanzhuo Wang*
- Proposed an **ontology alignment** model (a Chinese patent), and a **relation inference** model (a Chinese patent); Developed a **tag inference** model (a Chinese patent), a **relation extraction** model, an **entity disambiguation** model based on knowledge graph embedding.
- Proved the validity of the lock-free parallel framework for Knowledge Graph Embedding. Coauthored a regular paper at WI 2017.
- Designed the type path representation for anti-noise **fine-grained entity typing**. Coauthored a short paper at AAAI 2018.
- Designed the parent type representation for type constrained topic entity detection in **KBQA**. Coauthored a short paper at WWW 2018.

### Link Prediction in Knowledge Graphs with Temporal Information
*11/2015 - 04/2017*
*National Grand Fundamental Research 973 Program of China No. 2014CB340401* — *Supervisor: Yuanzhuo Wang*
- Came up with the idea to divide the **hierarchical structures** into two categories, i.e., single-step and multi-step hierarchical structures.
- Proposed single-step specific margin to determine optimal margin adaptively in KG embedding. Wrote a short paper at WWW 2016.
- Proposed multi-step specific margin. Proved the convergence and error upper bound. Wrote a regular paper to IEEE Trans. on Big Data.
- Proposed **Time-Difference-Labeled Path** to integrate time information into relation paths. Wrote a short paper at AAAI 2016.

### OpenKN at TAC KBP 2016 (A Knowledge Base Population System)
*05/2016 - 08/2016*
*TAC KBP 2016 Cold Start (English)* — *Supervisor: Yuanzhuo Wang*
- Led four undergraduates to build a information extraction system, including **entity discovery** (ranked 1st out of 7 teams), **entity linking** (ranked 2nd out of 7 teams), **relation extraction** (ranked 9th out of 19 teams).

# Awards

### Academic and Scientific Competitions
- **1st prize** in National Computer Game Tournament (Connect Six), 2nd Prize in National Computer Game Tournament (Nogo)
- **1st prize** in National "LAN QIAO Cup" Software Innovation Competition, 3rd prize in National Information Security Competition
- 2nd prize in National Computer Design Competition, 3rd prize in National Trail of International Contest of innovation (iCAN'13)
- 2nd prize in Beijing "LAN QIAO Cup" ICPC Individual Undergraduate C/C++ Group, 2nd prize in Student Research Training Program of China

### Scholarships and Awards
- Schlumberger Fellowship (**Top 5%**, 2016), Chinese Academy of Sciences Scholarships (**Top 10%**, 2015)
- National Scholarships (**Top 2%**, 2014), National Motivational Scholarships (**Top5%**, 2012, 2013)
- Beijing Outstanding Undergraduate Award (**Top 2%**, 2015), USTB First Class Scholarship for Freshman (**Top 2%**, 2011)
- USTB Outstanding Technique Innovation Awards (**6 out of more than 10,000 students**, 2015)

# Skills

| | |
|---|---|
| Language | Python, Java (**Oracle Certified Professional Java Programmer** in 2014), C, C++, Shell, Scala, MATLAB, SQL. |