# 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. candidate 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. candidate 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 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

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

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 track), 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***. 1st student author. No. CN108694201A

Patent ***A Relation Inference System Based on Knowledge Graph Embedding***. 1st student author. No. CN106909622A

Patent ***A Tag Inference System Based on Knowledge Graph Embedding***. 2nd student author. No.CN107391577A

Patent ***A Fine-Grained Classification Method for Knowledge Base***. 2nd student author. No. CN104615687B

Patent ***An Attribute Extraction Method for Web Pages***. 2nd student author. 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).

### News Video Production
*10/2018 - Present*

*Hearst Project, collaborative with Columbia University* — *Supervisor: Heng Ji, Shi-Fu Chang*

- Led to run ASR and extract entities, relations, and events from ASR transcripts. Visualized the constructed knowledge graph.
- Trained an RNN-based model for **story script generation**.

### Multi-media Multi-lingual Fine-grained Knowledge Extraction System
*02/2019 - 08/2019*

*TAC Streaming Multimedia Knowledge Base Population (SM-KBP) 2019 Task1* — *Supervisor: Heng Ji, Shi-Fu Chang*

- Led to develop a **fine-grained knowledge extraction** system. Incorporated multimedia event extraction.

### Multi-media Multi-lingual Knowledge Extraction System
*08/2018 - 10/2018*

*TAC Streaming Multimedia Knowledge Base Population (SM-KBP) 2018 Task1* — *Supervisor: Heng Ji, Shi-Fu Chang*

- 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 knowledge graph automatically from the raw text corpus.
- Extracted named and nominal entities of 5 types. In **entity discovery**, ranked 1st out of 7 teams, 4 out of 6 measures ranked 1st.
- Conducted entity coreference. Participated in inter-document entities by linking to Wikipedia. In **entity linking**, ranked 2nd out of 7 teams.
- Extracted relations of 41 types based on **OpenIE**, **bootstrapping-based extractor**, Implicit Relation Extractor, 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 — Java (**Oracle Certified Professional Java Programmer** in 2014), Python, C, C++, Shell, Scala, MATLAB, SQL.