

Manling Li

Room 2148, Winslow Building, Rensselaer Polytechnic Institute, Troy, NY 12180

☎ (+1) 518-961-2060 | ✉ lim22@rpi.edu | 🏠 limanling.site | 📧 limanlingcs@outlook.com

Educations

Rensselaer Polytechnic Institute, Troy, New York, U.S.

08/2018 - Present

- Ph.D. in Computer Science, at Blender NLP Lab.
Advisor: Prof. Heng Ji

Institute 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.
Major GPA: 3.66/4.0, Overall GPA: 3.57/4.0 (Top 5%). 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
Major GPA: 3.97/4.0, Overall GPA: 3.88/4.0 (Top 2%)
- B.M. in Information Management and Information Systems (minor), at School of Economics and Management

Research Interest

Natural Language Processing, with special focuses on Information Extraction, Knowledge Graph Construction and Inference, and Multi-modal Natural Language Generation

Publications

- 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
- ACM MMSys'19 **The Unobtrusive Group Interaction (UGI) Corpus**. Indrani Bhattacharya, Michael Foley, [Manling Li](#), Tongtao Zhang, Christine Ku, Cameron Mine, Heng Ji, etc. Submitted to ACM Multimedia Systems Conference 2019 (*under review*)
- 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 (*short paper*)
- 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 (*short paper*)
- 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
- 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
- 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 (*short paper*)
- 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 (*short paper*)
- 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-MODAL NATURAL LANGUAGE GENERATION

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-level meeting summarization model by topic segmentation and labeling.
- Proposed an attention mechanism to select utterance sentences based on users' focuses and gestures.
- Analyzed ASR transcripts quality by keyphrase extraction. Coauthored a paper submitted to 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 base in graph-level.
- Trained an RNN-based model to generate story scripts using the knowledge extraction results.

INFORMATION EXTRACTION & KNOWLEDGE GRAPH CONSTRUCTION

Multi-media Multi-lingual Knowledge Extraction System

TAC Streaming Multimedia Knowledge Base Population (SM-KBP) 2018 Task1

08/2018 - 10/2018

Supervisor: Heng Ji

- Generated provenance for human hypothesis, and assisted in refining system output knowledge base using hypothesis.
- Grounded entities to image bounding boxes based on their multimedia common space representations.
- Completed an entity-relation graph search demo and timeline demo. Presented at **TAC KBP 2018 Workshop**.

Knowledge Base Taxonomy Construction

National Natural Science Foundation of China (NSFC) No.61572469

07/2017 - 03/2018

Supervisor: Yuanzhuo Wang

- 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**.

Knowledge Graph Construction and Inference for Videos

Huawei Project

06/2016 - 07/2017

Supervisor: Yuanzhuo Wang

- Proposed an **ontology alignment** model by embedding two graphs jointly in a co-training framework. Wrote a Chinese patent.
- Implemented a **relation extraction** model by embedding "<relation mention, relation>" graph and "<entity, relation, entity>" graph.
- Implemented an **entity disambiguation** model enhanced by knowledge graph embedding.
- Proposed a **relation inference** model by considering relation-paths while learning embedding vectors. Wrote a Chinese patent.
- Implemented a **tag inference** model by embedding entity-tag graph and entity- attribute graph. Coauthored a Chinese patent.
- Proved the validity of the lock-free parallel framework for Knowledge Graph Embedding. Coauthored a regular paper at **WI 2017**.

OpenKN at TAC KBP 2016 (A Knowledge Base Population System)

TAC KBP 2016 Cold Start (English)

05/2016 - 08/2016

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 by conducting 4 relation extraction modules (i.e., OpenIE-Based Extractor, Bootstrapping-Based Extractor, Implicit Relation Extractor, and Rule-Based Extractor) and a bagging module. In Slot Filling, ranked 9th out of 19 teams.

LINK PREDICTION & KNOWLEDGE GRAPH EMBEDDING

Hierarchy-Constrained Knowledge Graph Embedding for Link Prediction

National Grand Fundamental Research 973 Program of China No. 2014CB340401

11/2015 - 04/2017

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**.

Predicting Links and Their Building Time in Knowledge Graphs

National Natural Science Foundation of China (NSFC) No. 61572473

12/2014 - 10/2015

Supervisor: Yuanzhuo Wang

- Proposed Time-Difference-Labeled Path to integrate time information into relation paths. Wrote a short paper at **AAAI 2016**.

APPLICATIONS

Intelligent Medical Assistant

Student Research Training Program of China (SRTP)

12/2013 - 12/2014

Supervisor: Xiaotong Zhan, Yuanzhuo Wang

- Implemented a **fine-grained entity typing** model for medical types. Coauthored a Chinese patent (2nd student author).
- Implemented an **attribute extractor** for medicine entities based on CRF. Coauthored a Chinese patent (2nd student author).
- Built a light **search engine** for the extracted medicines, including inverted index building, query expansion, and VSM based rank model.

Honors

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 (**Top 5%**, 2012, 2013)
- USTB First Class Scholarship for Freshman (**Top 2%**, 2011), Excellent Student Award (**Top 5%**, 2012, 2013, 2014, 2016, 2017)
- Beijing Outstanding Undergraduate Award (**Top 2%**, 2015), USTB Excellent Student Leader Award (**Top 10%**, 2013, 2014)
- USTB Outstanding Technique Innovation Awards (**6 out of more than 10,000 students**, 2015)

Skills

Language Java (**Oracle Certified Professional Java Programmer** in 2014), C, C++, Python, Shell, Scala, MATLAB, SQL.
English TOEFL: 104 (Reading 29, Listening 26, Speaking 23, Writing 26)