

# 李响 Xiang Lorraine Li

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## EDUCATION

- University of Massachusetts Amherst** GPA: 3.9/4.0 *Amherst, MA* *Sep.2016 - Present*  
PhD in Computer Science; Advised by Andrew McCallum  
Coursework: Machine Learning, Neural Networks, Advanced Natural Language Processing
- University of Chicago** GPA: 3.7/4.0 *Chicago, IL* *Sep.2014 - Dec.2015*  
MS in Computer Science
- East China Normal University** GPA: 3.4/4.0 *Shanghai, China* *Sep.2010 – Jun.2014*  
BE in Software Engineering

## PUBLICATIONS

- **Xiang Li\***, Luke Vilnis\*, Dongxu Zhang, Michael Boratko, Andrew McCallum “Smoothing the Geometry of Probabilistic Box Embeddings”, International Conference on Learning Representations (**ICLR**) 2019. **Oral presentation.** \*Equal contribution.
- Luke Vilnis\*, **Xiang Li\***, Shikhar Murty, Andrew McCallum “Probabilistic Embedding of Knowledge Graphs with Box Lattice Measures”, The Annual Meeting of the Association for Computational Linguistics (**ACL**), 2018. \*Equal contribution.
- **Xiang Li**, Luke Vilnis, Andrew McCallum “Improved Representation Learning for Predicting Commonsense Ontologies”, Workshop on Deep Structured Prediction, International Conference on Machine Learning (**ICML WS**), 2017.
- **Xiang Li**, Aynaz Taheri, Lifu Tu, Kevin Gimpel, “Commonsense Knowledge Base Completion”, The Annual Meeting of the Association for Computational Linguistics (**ACL**), 2016.
- **Xiang Li**, Xiaoyang Xu, Tanu Malik “Interactive provenance summaries for reproducible science”, e-Science, 2016 **IEEE** 12th International Conference on, 355-360.

## NLP RESEARCH EXPERIENCE

- Research Assistant** *Sep.2016 – Present*  
Mentor: Prof Andrew McCallum *IESL (UMass Amherst)*
- Research interest including representation learning for commonsense knowledge, unsupervised frame/event extraction, multi-relation representation using box probabilistic representation.
  - Currently focused on representation learning on transitive relations.
- Software Engineering Internship** *May.2018 – Aug.2018*  
Mentor: Colin Evans *Mountain View, Google*
- Proposed improved training method for box lattice model to learn asymmetric hierarchical relations.
  - Improved results over previous method by large margin based on experiments using Google data.
  - Accepted to ICLR 2019 as Oral.
- Software Engineering Internship** *Jun.2017 – Aug.2017*  
Mentor: Colin Evans *Mountain View, Google*
- Explored different models to learn asymmetric hierarchical relation representation using noisy training data.
  - Proposed new evaluation for taxonomy structure learning.
  - Presented this project at Google PhD Summit, 2017.

## Biomedical Event Extraction using Abstract Meaning Representation

*Jun.2016 - Aug.2016*

Mentor: Prof. Kevin Knight & Prof. Daniel Marcu

*ISI (USC)*

- Extracted bio entries (proteins, cells etc.) relation information from medical papers by transferring AMRs to simplified AMRs, which only contain certain bio information.
- Extracted transformation rules using the sequences getting from tree edit distance algorithm.

## Commonsense Knowledge Base Completion

*Jun.2015 - Apr.2016*

Mentor: Prof. Kevin Gimpel

*TTIC*

- Developed neural network models for scoring tuples on arbitrary phrases and evaluated them by their ability to distinguish true held-out tuples from false ones in ConceptNet.
- This work is published at ACL, 2016

## OTHER PROJECT EXPERIENCE

### C Compiler

*Sep.2015 - Nov.2015*

- Implemented a C-compiler from scratch using a subset of C grammar to generate x86 assembly code
- This compiler includes lexical analysis, parsing, semantic analysis and code generation. It builds the symbol table at the phase of parsing, and generates abstract semantic tree (AST) used for type checking, and error detection at the same time.
- Generated x86 assembly code using the AST representation.

### Serendipitous Recommendation via User's Recent Research Interests

*Jun.2015 - Sep.2015*

- Constructed basic profiles of researchers from Google Scholar etc (more than 5 data resources).
- Integrated the basic profile with other features regarding the most dissimilar researcher from a group of similar researchers. Recommendation result is obtained by calculating cosine similarity on TF-IDF matrix representation.

### Stock Return Prediction based on Patents and Twitter

*Mar.2015 - Jun.2015*

- Designed stock prediction model using kernel SVM, logistic regression and decision trees with features extracted from twitter and patent data.
- Performed LDA topic model and dynamic topic model on patent data to extract patent features and performed sentiment analysis on Twitter data to extract Twitter features.
- Based on our model's trading decision on Google, Microsoft and Yahoo stock from January to June 2015, investors will benefit 1.05% to 1.25%.

### Graph Summarization for Provenance Service

*Mar.2015 - Jun.2015*

- Transferred the very large graph to a summary graph while maintaining the most important information hidden in the original graph.
- Implemented SNAP/k-SNAP algorithms to get the summary graph.
- This work is published at IEEE, 2016

## AWARDS

**First Class** Scholarship for Outstanding Student (Top 5% Academic Excellence)

*Sep. 2012 - Sep. 2013*

**Third Class** Scholarship for Outstanding Student (Top 15% Academic Excellence)

*Sep. 2011 - Sep. 2012*

**Third Class** Scholarship for Outstanding Student (Top 15% Academic Excellence)

*Sep. 2010 - Sep. 2011*

## TECHNICAL SKILLS

**Programming Languages:** Python, Java, Matlab

**Deep Learning & Scientific Package:** Tensorflow, Theano, Lasagna, Scikit-Learn, Numpy, Scipy