

## Xuezhe Ma

Language Technologies Institute  
School of Computer Science  
Carnegie Mellon University

Email: xuezhem@cs.cmu.edu  
Phone: (+1) 206-512-5977  
<http://www.cs.cmu.edu/~xuezhem/>

- 
- RESEARCH** Natural Language Processing, Deep Learning and Representation Learning.
- EDUCATION**
- |  |                      |
|--|----------------------|
| <b>Ph.D</b> , Language Technologies Institute<br>Carnegie Mellon University<br>Advisor: Prof. Eduard Hovy                | 2014-2020 (expected) |
| <b>M.S.</b> , Department of Computer Science and Engineering<br>Shanghai Jiao Tong University<br>Advisor: Prof. Hai Zhao | 2010-2013            |
| <b>B.S.</b> , Department of Computer Science and Engineering<br>Shanghai Jiao Tong University<br>ACM Honored Class       | 2006-2010            |
- AWARDS**
- |   |      |
|---|------|
| <b>Best Demo Paper Nomination, ACL 2019</b> | 2019 |
| <b>AI2 Outstanding Intern Award</b>         | 2018 |
| <b>Outstanding Paper Award, ACL 2016</b>    | 2016 |
- SELECTED PUBLICATIONS** [2019]
- MaCow: Masked Convolutional Generative Flow  
**Xuezhe Ma**, Xiang Kong, Shanghang Zhang and Eduard Hovy  
*NeurIPS 2019*
- FlowSeq: Non-Autoregressive Conditional Sequence Generation with Generative Flow  
**Xuezhe Ma\***, Chunting Zhou\*, Xian Li, Graham Neubig and Eduard Hovy  
*EMNLP 2019*
- MAE: Mutual Posterior-Divergence Regularization for Variational AutoEncoders  
**Xuezhe Ma**, Chunting Zhou and Eduard Hovy  
*ICLR 2019*
- An Empirical Investigation of Structured Output Modeling for Graph-based Neural Dependency Parsing  
Zhisong Zhang, **Xuezhe Ma** and Eduard Hovy  
*ACL 2019*
- Density Matching for Bilingual Word Embedding  
Chunting Zhou, **Xuezhe Ma**, Di Wang and Graham Neubig  
*NAACL 2019 (Oral)*
- On Difficulties of Cross-Lingual Transfer with Order Differences: A Case Study on Dependency Parsing  
Wasi Uddin Ahmad\*, Zhisong Zhang\*, **Xuezhe Ma**, Eduard Hovy, Kai-Wei Chang and Nanyun Peng  
*NAACL 2019*
- [2018]
- Stack-Pointer Networks for Dependency Parsing  
**Xuezhe Ma**, Zecong Hu, Jingzhou Liu, Nanyun Peng, Graham Neubig and Eduard Hovy  
*ACL 2018 (Oral)*

Softmax Q-Distribution Estimation for Structured Prediction: A Theoretical Interpretation for RAML  
**Xuezhe Ma**, Pengcheng Yin, Jingzhou Liu, Graham Neubig and Eduard Hovy  
*Arxiv Preprint.*

[2017]

Dropout with Expectation-Linear Regularization  
**Xuezhe Ma**, Yingkai Gao, Zhiting Hu, Yaoliang Yu, Yuntian Deng and Eduard Hovy  
***ICLR 2017***

Neural Probabilistic Model for Non-projective MST Parsing  
**Xuezhe Ma** and Eduard Hovy  
***IJCNLP 2017 (Oral)***

An Interpretable Knowledge Transfer Model for Knowledge Base Completion  
Qizhe Xie, **Xuezhe Ma**, Zihang Dai and Eduard Hovy  
***ACL 2017 (Oral)***

[2016]

End-to-end Sequence Labeling via Bi-directional LSTM-CNNs-CRF  
**Xuezhe Ma** and Eduard Hovy  
***ACL 2016***

Harnessing Deep Neural Networks with Logic Rules  
Zhiting Hu, **Xuezhe Ma**, Zhengzhong Liu, Eduard Hovy and Eric P. Xing  
***ACL 2016 (Outstanding Paper Award)***

Unsupervised Ranking Model for Entity Coreference Resolution  
**Xuezhe Ma**, Zhengzhong Liu and Eduard Hovy  
***NAACL 2016 (Oral)***

[2015 and before]

Efficient Inner-to-outer Greedy Algorithm for Higher-order Dependency Parsing  
**Xuezhe Ma** and Eduard Hovy  
***EMNLP 2015***

Unsupervised Dependency Parsing with Transferring Distribution via Parallel Guidance and Entropy Regularization  
**Xuezhe Ma** and Fei Xia  
***ACL 2014***

Dependency Parser Adaptation with Subtrees from Auto-Parsed Target Domain Data  
**Xuezhe Ma** and Fei Xia  
***ACL 2013***

Fourth-Order Dependency Parsing  
**Xuezhe Ma** and Hai Zhao  
***COLING 2012***

**SELECTED  
TALKS**

FlowSeq: Non-Autoregressive Conditional Sequence Generation with Generative Flow  
*2019, Microsoft Research AI Breakthroughs*

Neural Models for Dependency Parsing  
*2018, CMU Machine Learning Lunch Seminar*

Stack-Pointer Networks for Dependency Parsing  
2018, *ACL Conference*

End-to-end Sequence Labeling via Bi-directional LSTM-CNNs-CRF  
2016, *ACL Conference*

**SERVICES** Reviewer of ACL, NAACL, EMNLP, COLING, NeurIPS, ICLR  
Organizer of Deep Learning Seminar at CMU 2016-2018

**ADVISING** I am advising multiple graduate students at CMU.  
• Xiang Kong (Ph.D at LTI). Controllable Text Generation with Generative Flows.  
• Zhisong Zhang (Master at LTI). Deep Neural Models for Dependency Parsing.  
• Neil Xu (Master at MLD). Flow-based Generative Models.

**TEACHING** **Teaching Assistant and Lecturer**  
Computational Semantics for Natural Language Processing, CMU. Spring 2018

**Teaching Assistant and Lecturer**  
Deep Neural Networks for Natural Language Processing, CMU. Fall 2017

**Teaching Assistant**  
Natural Language Processing, SJTU. Fall 2011

**Open Source** **NeuroNLP2**  
<https://github.com/XuezheMax/NeuroNLP2>  
Implementations of deep neural models for core NLP tasks such as part-of-speech tagging, named entity recognition, dependency parsing, etc.

**FlowSeq**  
<https://github.com/XuezheMax/flowseq>  
A Generative Flow based Sequence-to-Sequence Toolkit.

**MaxParser**  
<https://github.com/XuezheMax/MaxParser>  
An implementation of graph-based dependency parser in Java with algorithms from first order to fourth order.

**RESEARCH EXPERIENCE** **Allen Institute for Artificial Intelligence** Summer 2018  
Seattle, WA

**Research Intern** at *Semantic Scholar Group*  
Research on scientific concept discovery and definition extraction  
Mentor: Waleed Ammar.

**University of Washington** 2012-2013  
Seattle, WA

**Research Intern** at *Department of Linguistic*  
Working on RiPLEs project, focusing on parser adaptation and grammar generation for resource-poor and endangered Languages.  
Advisor: Fei Xia.

**Microsoft Research Asia** Summer 2009  
Beijing, China

**Research Intern** at *Speech Group*  
Research on automatic prosody prediction and detection with CRF model.  
Mentor: Yao Qian and Frank Soong