Xi Victoria Lin

CONTACT INFORMATION	Salesforce Research 575 High Street Palo Alto, CA 94301-1624, USA	*E-mail:* xilin@salesforce.com *WWW:* http://victorialin.net

RESEARCH INTERESTS

Natural language understanding, knowledge representation & reasoning, deep learning.

WORK EXPERIENCE

Salesforce Research, Palo Alto, CA.
Research Scientist   10/2017-*present*

EDUCATION

University of Washington, Seattle, WA
Ph.D. graduated as M.Sc., Computer Science and Engineering,   08/2017
- Advisors: Prof. Luke Zettlemoyer and Prof. Michael D. Ernst
- Research Topic: semantic parsing, program synthesis from natural language, knowledge base population

University of Pennsylvania, Philadelphia, PA
Ph.D. graduated as M.Sc., Computer and Information Science,   05/2013
- Advisor: Prof. Benjamin Taskar
- Research Topic: natural language processing, machine learning

University of Oxford, Kellogg College, Oxford, UK
M.Sc., Computer Science,   09/2011
- Advisor: Prof. Stephen Pulman
- Area of Study: computational linguistics, logic and formal semantics

The Hong Kong Polytechnic University, Kowloon, HK
B.Eng., Electronic & Information Engineering,   08/2010
- Cumulative GPA: 4.0/4.0
- Advisor: Prof. Kenneth K. M. Lam

Xi'an Jiaotong University, Xi'an, China
Special Class for the Gifted Young,   01/2008
- University STEM program for outstanding 9th-grade students selected across mainland China

RESEARCH INTERNSHIPS

Microsoft Research, Redmond, WA.   (Summer 2015)
Efficient Relation Extraction from Embedded Knowledge Graph and Text
With Researchers Kristina Toutanova, Wen-tau Yih, Hoifung Poon and Chris Quirk
This project proposed the first exact dynamic programming algorithm which enables efficient incorporation of all paths of bounded length, while modeling both the relation types and intermediate nodes in compositional embedding-based path representations. Experiments on two datasets show that it addresses representational limitations in prior approaches and improves accuracy in KB completion.

Allen Institute for Artificial Intelligence, Seattle, WA.   (Summer 2014)
Knowledge Extraction for Elementary Physics Reading Comprehension
With Researcher Tom Kwiatkowski
We proposed a knowledge extraction and inference pipeline for elementary school physics reading comprehension and focused on designing a domain-specific knowledge schema that supports efficient inference. This project raised some challenging open problems: 1) Can we develop formal semantics for the operation and inference required to solve

physics problems? 2) Can we train machine learning algorithms that executes the formal semantics given natural language questions using the weak supervision from Q&A pairs?

RESEARCH PROJECTS

Program Synthesis from Natural Language Using Neural Networks (2016 - 2017)
With Chenglong Wang, Kevin Vu, Deric Pang, Profs. Michael D. Ernst and Luke Zettlemoyer
This project sought to make programming easier by letting programmers use their own words and concepts to express an intended operation, and automatically translate it into executable code. Demo system (http://tellina.rocks).

Cross-lingual Distant Supervision for Relation Extraction (2014 - *2016*)
With Profs. Sameer Singh and Luke Zettlemoyer
This project proposed bilingual projection in the universal schema framework to strengthen the distant supervision signal for relation extraction in two languages, English and Chinese. We observed that combining the distant supervision data of the languages alone improves predictions over both languages, and adding bilingual projection of the text patterns further improves the results.

Multi-label Learning with Posterior Regularization (2013 - 2014)
With Luheng He, Profs. Benjamin Taskar, Sameer Singh, and Luke Zettlemoyer
This work uses posterior regularization techniques to enforce soft constraints on the output of discriminative multi-label classifiers, regularizing them to prefer sparse and low-rank predictions. Experiments in both the image and text domains demonstrate the contribution of each modeling assumption and show that the approach achieve state-of-the-art performance on a number of challenging datasets.

Fine-grained Named Entity Classification in Machine Reading (2011)
With Prof. Stephen Pulman
This work proposed a bootstrapping approach that classifies named entities into entry-level categories, with a special focus in the *people* domain.

CONFERENCE PUBLICATIONS

[1] Lin, X.V., Wang, C., Zettlemoyer L., Ernst M.D. NL2Bash: A Corpus and Semantic Parser for Natural Language Interface to the Linux Operating System. LREC 2018.

[2] Toutanova, K., Lin, X. V., Yih, W., Poon, H., Quirk, C. Compositional Learning of Embeddings for Relation Paths in Knowledge Bases and Text. ACL 2016.

OTHER PUBLICATIONS

[3] Lin, X.V., Wang, C., Pang, D., Vu, K., Zettlemoyer, L., Ernst, M.D. Program Synthesis from Natural Language Using Recurrent Neural Networks. Technical report UW-CSE-17-03-01.

[4] Lin, X.V., Singh, S., He, L., Taskar, B., and Zettlemoyer, L. Multi-label Learning with Posterior Regularization. In *NIPS Workshop on Modern Machine Learning and Natural Language Processing*, December 08–12, 2014, Montreal, Canada.

[5] Lin, X.V. Fine-grained Named Entity Classification in Machine Reading. *M.Sc. thesis*. Oxford University. 2011.

TEACHING EXPERIENCE

University of Pennsylvania, Philadelphia, PA

Teaching Assistant
- CIS520: Machine Learning   Fall 2012
  - Writing exam questions; answering Piazza questions; office hours; grading

HONORS AND AWARDS	**University of Pennsylvania** • Doctoral Fellowship, 2011–2013 **The Hong Kong Polytechnic University** • Best Academic Performance Award, EIE Department, 2009–2010 • Hong Kong SAR Government Scholarship, 2009-2010 • Hong Kong Polytechnic University Post-entry Scholarship, 2008–2009 • Hong Kong & Kowloon Electrical Appliances Merchants Association Scholarship, 2008–2009 • Apple Inc. WWDC Student Scholarship, 2009
CONFERENCE SERVICES	Reviewer • EMNLP 2015, 2016, 2017 • ACL 2017, 2018 PC Member • Automated Knowledge Base Construction (AKBC) 2016, 2017
PROGRAMMING SKILLS	Deep Learning APIs: Tensorflow, Torch7, Theano Languages: Python, Java, C++, Matlab, R, Lua, HTML, CSS, JavaScript
REFERENCES AVAILABLE TO CONTACT	**Prof. Luke S. Zettlemoyer** (e-mail: lsz@cs.washington.edu) ⋆ *Research adviser* • Associate Professor, Computer Science & Engineering, University of Washington ⋄ 185 Stevens Way, Seattle, WA 98195-2350 **Prof. Michael D. Ernst** (e-mail: mernst@cs.washington.edu) ⋆ *Research adviser* • Professor, Computer Science & Engineering, University of Washington ⋄ 185 Stevens Way, Seattle, WA 98195-2350 **Prof. Sameer Singh** (e-mail: sameer@uci.edu) ⋆ *Research mentor* • Assistant Professor, Computer Science, University of California, Irvine ⋄ 4204 Donald Bren Hall, Irvine, CA 92697-3435 **Prof. Stephen Pulman** (e-mail: sgp@clg.ox.ac.uk; phone: +44-186-561-0800) ⋆ *M.Sc. thesis advisor* • FBA Professor, Computational Linguistics, University of Oxford ⋄ Wolfson Building, Parks Road, Oxford OX1 3QD **Prof. Kenneth Lam** (e-mail: enkmlam@polyu.edu.hk; phone: +852-2766-6207) ⋆ *B.Eng. thesis advisor* • Professor, Electronic and Information Engineering, The Hong Kong Polytechnic University ⋄ Room DE503c, EIE Department, HKPU, Hung Hom, Kowloon, Hong Kong.