Victoria X. Lin

SENIOR RESEARCH SCIENTIST

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Research Interest

Natural Language Understanding, AI for Productivity, AI Fairness and Accountability

Work Experience

Salesforce Research   *Palo Alto, CA, USA*

SENIOR RESEARCH STAFF   *Jun. 2018 - present*

- Conduct natural language understanding research focusing on semantic parsing, natural language interface and question answering
- Discover new research problems in AI for productivity, design new solutions and release new benchmark datasets
- Mentor research interns and collaborate with the wider research community on a broader range of NLP and machine learning problems

RESEARCH SCIENTIST   *Oct. 2017 - Jun. 2018*

- Conduct natural language understanding research focusing on knowledge graph reasoning and question answering

Microsoft Research   *Redmond, WA, USA*

RESEARCH INTERN   *Jun. 2015 - Sep. 2015*

- Collaborate with senior researchers on machine reading for precision medicine
- Develop a novel algorithm and baselines for learning compositional embeddings of relation paths in knowledge bases and text

Allen Institute for Artificial Intelligence   *Seattle, WA, USA*

RESEARCH INTERN   *Jul. 2014 - Sep. 2014*

- Collaborate with senior researchers on machine reading for answering science exam questions
- Design and experiment with an information extraction approach that populates a hand-engineered physics knowledge schema for answering complex physics questions

Conference Publications

Bridging Textual and Tabular Data for Cross-Domain Text-to-SQL Semantic Parsing

Xi Victoria Lin, Richard Socher, Caiming Xiong   EMNLP Findings 2020

Photon: A Robust Cross-Domain Text-to-SQL System

Jichuan Zeng*, Xi Victoria Lin*, Caiming Xiong, Richard Socher, Michael R. Lyu, Irwin King, Steven C.H. Hoi   ACL Demo 2020

Double-Hard Debias: Tailoring Word Embeddings for Gender Bias Mitigation

Tianlu Wang, Xi Victoria Lin, Nazeen Fatema Rajani, Bryan McCann, Vicente Ordonez and Caiming Xiong   ACL 2020

CoSQL: A Conversational Text-to-SQL Challenge Towards Cross-Domain Natural Language Interfaces to Databases

Tao Yu, Rui Zhang, Heyang Er, Suyi Li, Eric Xue, Bo Pang, Xi Victoria Lin, Yi Chern Tan, Tianze Shi, Zihan Li, Youxuan Jiang, Michihiro Yasunaga, Sungrok Shim, Tao Chen, Alexander Fabbri, Zifan Li, Luyao Chen, Yuwen Zhang, Shreya Dixit, Vincent Zhang, Caiming Xiong, Richard Socher, Walter Lasecki and Dragomir Radev   EMNLP 2019

Editing-based SQL Query Generation for Cross-Domain Context-Dependent Questions

Rui Zhang, Tao Yu, Heyang Er, Sungrok Shim, Eric Xue, Xi Victoria Lin, Tianze Shi, Caiming Xiong, Richard Socher and Dragomir Radev   EMNLP 2019

SParC: Cross-Domain Semantic Parsing in Context

Tao Yu, Rui Zhang, Michihiro Yasunaga, Yi Chern Tan, Xi Victoria Lin, Suyi Li, Heyang Er, Irene Li, Bo Pang, Tao Chen, Emily Ji, Shreya Dixit, David Proctor, Sungrok Shim, Jonathan Kraft, Vincent Zhang, Caiming Xiong, Richard Socher, Dragomir Radev   ACL 2019

Multi-Hop Knowledge Graph Reasoning with Reward Shaping

Xi Victoria Lin, Richard Socher and Caiming Xiong   EMNLP 2018

NL2Bash: A Corpus and Semantic Parser for Natural Language Interface to the Linux Operating System

Xi Victoria Lin, Chenglong Wang, Luke Zettlemoyer and Michael D. Ernst   LREC 2018

Compositional Learning of Embeddings for Relation Paths in Knowledge Bases and Text

Kristina Toutanova, <u>Xi Victoria Lin</u>, Scott Wen-tau Yih, Hoifung Poon and Chris Quirk   ACL 2016

Workshop and Other Publications

ColloQL: Robust Text-to-SQL over Search Queries

Karthik Radhakrishnan, Arvind Srikantan, <u>Xi Victoria Lin</u>   Intex-Sempar 2020

Program Synthesis from Natural Language Using Recurrent Neural Networks

<u>Xi Victoria Lin</u>, Chenglong Wang, Deric Pang, Kevin Vu, Luke Zettlemoyer, Michael D. Ernst   UWCSE-TR 2017

Multi-label Learning with Posterior Regularization

<u>Xi Victoria Lin</u>, Sameer Singh, Luheng He, Ben Taskar, and Luke Zettlemoyer   NeurIPS-MLNLP 2014

Fine-grained Named Entity Classification in Machine Reading

<u>Xi Victoria Lin</u>   Oxford Thesis 2011

Preprints

GraPPa: Grammar-Augmented Pre-Training for Table Semantic Parsing

Tao Yu, Chien-Sheng Wu, <u>Xi Victoria Lin</u>, Bailin Wang, Yi Chern Tan, Xinyi Yang, Dragomir Radev, Richard Socher, Caiming Xiong   ArXiv 2020

DART: Open-Domain Structured Data Record to Text Generation

Dragomir Radev, Rui Zhang, Amrit Rau, Abhinand Sivaprasad, Chiachun Hsieh, Nazneen Fatema Rajani, Xiangru Tang, Aadit Vyas, Neha Verma, Pranav Krishna, Yangxiaokang Liu, Nadia Irwanto, Jessica Pan, Faiaz Rahman, Ahmad Zaidi, Murori Mutuma, Yasin Tarabar, Ankit Gupta, Tao Yu, Yi Chern Tan, <u>Xi Victoria Lin</u>, Caiming Xiong, Richard Socher   ArXiv 2020

* indicates equal contribution

Patents

Multi-hop knowledge graph reasoning with reward shaping

<u>Xi Victoria Lin</u>, Richard Socher, Caiming Xiong   US Patent App. 16/051,309

Talks

Creating The Future Of AI: How Salesforce Research Advances AI For CRM (co-speaker)   Dreamforce 2019

Technical Writing

Talk to Your Data: One Model, Any Relational Database.   Einstein.ai 2020

Software

Photon v1.1: https://naturalsql.com/   Salesforce, 2020

Photon is a deep learning based cross-domain natural language interface to databases that focuses on factual look-up questions. It allows end users to query a number of relational DBs in natural language, including DBs it has never been trained on.

Tellina v1.0: http://tellina.rocks/   UWCSE, 2017

Tellina is an end-user scripting assistant that can be queried via natural language. It translates a natural language sentence typed by the user into a piece of short, executable script.

Education

University of Washington   *Seattle, WA, USA*

Ph.D. graduated as M.Sc. in Computer Science   *Aug. 2017*

University of Pennsylvania
Philadelphia, PA, USA
Ph.D. graduated as M.Sc. in Computer Science
May. 2013

University of Oxford
Oxford, UK
M.Sc. in Computer Science
Sep. 2011

The Hong Kong Polytechnic University
Kowloon, HK
B.Eng. in Electronic and Information Engineering
Aug. 2010

Xi'an Jiaotong University
Xi'an, Shaanxi, CN
Special Class for the Gifted Young
Jan. 2008

Honors & Awards

2014	**Travel Award**, NIPS Women in Machine Learning Workshop	*Montreal, Québec, CA*
2011	**Doctoral Fellowship**, University of Pennsylvania	*Philadelphia, PA, USA*
2010	**Best Academic Performance Award**, Department of Electronic and Information Engineering, HKPU	*Kowloon, HK*
2010	**Scholarship**, Hong Kong SAR Goverment	*Kowloon, HK*
2009	**Scholarship**, Hong Kong Polytechnic University Post-Entry	*Kowloon, HK*
2009	**Scholarship**, Hong Kong & Kowloon Electrical Appliances Merchants Association	*Kowloon, HK*
2009	**Student Travel Award**, Apple Worldwide Developers Conference	*San Francisco, CA, USA*

Service

Co-chair

System Demonstration Track
NAACL 2021

Organizing Committee

1st Workshop on Interactive and Executable Semantic Parsing (Intex-Sempar)
EMNLP 2020

Competition for Automatic Translation of English to Bash (NLC2CMD)
NeurIPS 2020

Program Committee

2020	ACL, EMNLP, AACL, ACL-NLI
2019	ICML, ACL, NAACL
2018	ACL, EMNLP, COLING, CoNLL
2017	ACL, EMNLP
2016	EMNLP
2015	EMNLP

Teaching

CIS 520: Machine Learning
University of Pennsylvania
Teaching Assistant
Sep. 2012 - Dec. 2012
- Making exam problems; answering Piazza questions; holding office hours; grading

Programming Skills

Languages	Python, Java, C++, Matlab, R, Lua, JavaScript, HTML, CSS
Deep Learning	Pytorch, Tensorflow
Web	Django