

Victoria X. Lin

RESEARCH SCIENTIST

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Research Interest

I am passionate about building general intelligent systems that process information at scale and assist humans in various knowledge-intensive tasks. My recent work focuses on efficient large language model pre-training and neural information retrieval.

Experience

Meta, Foundational AI Research (FAIR)

RESEARCH SCIENTIST

- Large-scale language modeling (LLM), retrieval-augmented LLM, LLM alignment

Menlo Park, CA, USA

Jan. 2021 - present

Salesforce Research

RESEARCH SCIENTIST

- Natural language to code, question answering and knowledge graph reasoning

Palo Alto, CA, USA

Oct. 2017 - Dec. 2020

Microsoft Research

RESEARCH INTERN

Redmond, WA, USA

Jun. 2015 - Sep. 2015

Allen Institute for Artificial Intelligence

RESEARCH INTERN

Seattle, WA, USA

Jul. 2014 - Sep. 2014

Preprints

* denotes equal contribution

P3. OPT-IML: Scaling language model instruction meta learning through the lens of generalization

Srinivasan Iyer*, Xi Victoria Lin*, Ramakanth Pasunuru*, Todor Mihaylov, Daniel Simig, Ping Yu, Kurt Shuster, Tianlu Wang, Qing Liu, Punit Singh Koura, Xian Li, Brian O'Horo, Gabriel Pereyra, Jeff Wang, Christopher Dewan, Asli Celikyilmaz, Luke Zettlemoyer, Ves Stoyanov.

ArXiv 2022

P2. OPT: Open pre-trained transformer language models

Susan Zhang*, Stephen Roller*, Naman Goyal*, Mikel Artetxe, Moya Chen, Shuohui Chen, Christopher Dewan, Mona Diab, Xian Li, Xi Victoria Lin, Todor Mihaylov, Myle Ott, Sam Shleifer, Kurt Shuster, Daniel Simig, Punit Singh Koura, Anjali Sridhar, Tianlu Wang, Luke Zettlemoyer.

ArXiv 2022

P1. FOLIO: Natural Language Reasoning with First-Order Logic

Simeng Han, Hailey Schoelkopf, Yilun Zhao, Zhenting Qi, Martin Riddell, Luke Benson, Lucy Sun, Ekaterina Zubova, Yujie Qiao, Matthew Burtell, David Peng, Jonathan Fan, Yixin Liu, Brian Wong, Malcolm Sailor, Ansong Ni, Linyong Nan, Jungo Kasai, Tao Yu, Rui Zhang, Shafiq Joty, Alexander R. Fabbri, Wojciech Kryscinski, Xi Victoria Lin, Caiming Xiong, Dragomir Radev.

ArXiv 2022

Conference Publications

C23. RA-DIT: Retrieval-Augmented Dual Instruction Tuning

Xi Victoria Lin*, Xilun Chen*, Mingda Chen*, Weijia Shi, Maria Lomeli, Rich James, Pedro Rodriguez, Jacob Kahn, Gergely Szilvasy, Mike Lewis, Luke Zettlemoyer, Scott Wen-tau Yih.

ICLR 2024

C22. In-Context Pretraining: Language Modeling Beyond Document Boundaries

Weijia Shi, Sewon Min, Maria Lomeli, Chunting Zhou, Margaret Li, Rich James, Xi Victoria Lin, Noah A. Smith, Luke Zettlemoyer, Scott Wen-tau Yih, Mike Lewis.

ICLR 2024

C21. Towards A Unified View of Sparse Feed-Forward Network in Pretraining Large Language Model

Leo Z. Liu, Tim Dettmers, Xi Victoria Lin, Veselin Stoyanov, Xian Li.

EMNLP 2023

C20. LEVER: Learning to Verify Language-to-Code Generation with Execution.

Ansong Ni, Srinu Iyer, Dragomir Radev, Ves Stoyanov, Scott Wen-tau Yih, Sida I. Wang*, Xi Victoria Lin*.

ICML 2023

- C19. **Training Trajectories of Language Models Across Scales.**
Mengzhou Xia, Mikel Artetxe, Chunting Zhou, [Xi Victoria Lin](#), Ramakanth Pasunuru, Danqi Chen, Luke Zettlemoyer, Ves Stoyanov. ACL 2023
- C18. **Reimagining Retrieval Augmented Language Models for Answering Queries.**
Wang-Chiew Tan, Yuliang Li, Pedro Rodriguez, Richard James, [Xi Victoria Lin](#), Alon Halevy, Scott Wen-tau Yih. Findings of ACL 2023
- C17. **Few-shot Learning with Multilingual Language Models.**
[Xi Victoria Lin](#)^{*}, Todor Mihaylov, Mikel Artetxe, Tianlu Wang, Shuohui Chen, Daniel Simig, Myle Ott, Naman Goyal, Shruti Bhosale, Jingfei Du, Ramakanth Pasunuru, Sam Shleifer, Punit Singh Koura, Vishrav Chaudhary, Brian O'Horo, Jeff Wang, Luke Zettlemoyer, Zornitsa Kozareva, Mona Diab, Veselin Stoyanov, Xian Li^{*}. EMNLP 2022
- C16. **Efficient Large Scale Language Modeling with Mixtures of Experts.**
Mikel Artetxe^{*}, Shruti Bhosale^{*}, Naman Goyal^{*}, Todor Mihaylov^{*}, Myle Ott^{*}, Sam Shleifer^{*}, [Xi Victoria Lin](#), Jingfei Du, Srinivasan Iyer, Ramakanth Pasunuru, Giri Anantharaman, Xian Li, Shuohui Chen, Halil Akin, Mandeep Baines, Louis Martin, Xing Zhou, Punit Singh Koura, Brian O'Horo, Jeff Wang, Luke Zettlemoyer, Mona Diab, Zornitsa Kozareva, Ves Stoyanov. EMNLP 2022
- C15. **Lifting the Curse of Multilinguality by Pre-training Modular Transformers.**
Jonas Pfeiffer, Naman Goyal, [Xi Victoria Lin](#), Xian Li, James Cross, Sebastian Riedel, Mikel Artetxe. NAACL 2022
- C14. **On Continual Model Refinement in Out-of-Distribution Data Streams.**
Bill Yuchen Lin, Sida Wang, [Xi Victoria Lin](#), Robin Jia, Lin Xiao, Xiang Ren, Scott Wen-tau Yih. ACL 2022
- C13. **Pretty Princess vs. Successful Leader: Gender Roles in Greeting Card Messages.** *Best Paper Honorable Mention*
Jiao Sun, Tongshuang Wu, Yue Jiang, Ronil Awalegaonkar, [Xi Victoria Lin](#), Diyi Yang. CHI 2022
- C12. **FeTaQA: Free-form Table Question Answering**
Linyong Nan, Chiachun Hsieh, Ziming Mao, [Xi Victoria Lin](#), Neha Verma, Rui Zhang, Wojciech Kryściński, Nick Schoelkopf, Riley Kong, Xiangru Tang, Murori Mutuma, Ben Rosand, Isabel Trindade, Renusree Bandaru, Jacob Cunningham, Caiming Xiong, Dragomir Radev. TACL 2022
- C11. **GraPPa: Grammar-Augmented Pre-Training for Table Semantic Parsing**
Tao Yu, Chien-Sheng Wu, [Xi Victoria Lin](#), Bailin Wang, Yi Chern Tan, Xinyi Yang, Dragomir Radev, Richard Socher, Caiming Xiong ICLR 2021
- C10. **Learning to Synthesize Data for Semantic Parsing.**
Bailin Wang, Wenpeng Yin, [Xi Victoria Lin](#) and Caiming Xiong. NAACL 2021 (short)
- C9. **DART: Open-Domain Structured Data Record to Text Generation**
Linyong Nan, Dragomir Radev, Rui Zhang, Amrit Rau, Abhinand Sivaprasad, Chiachun Hsieh, Xiangru Tang, Aadit Vyas, Neha Verma, Pranav Krishna, Yangxiaokang Liu, Nadia Irwanto, Jessica Pan, Faiaz Rahman, Ahmad Zaidi, Mutethia Mutuma, Yasin Tarabar, Ankit Gupta, Tao Yu, Yi Chern Tan, [Xi Victoria Lin](#), Caiming Xiong, Richard Socher and Nazneen Fatema Rajani. NAACL 2021
- C8. **Bridging Textual and Tabular Data for Cross-Domain Text-to-SQL Semantic Parsing**
[Xi Victoria Lin](#), Richard Socher, Caiming Xiong Findings of EMNLP 2020
- C7. **Double-Hard Debias: Tailoring Word Embeddings for Gender Bias Mitigation**
Tianlu Wang, [Xi Victoria Lin](#), Nazneen Fatema Rajani, Bryan McCann, Vicente Ordonez and Caiming Xiong ACL 2020
- C6. **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
- C5. **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

C4. 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

C3. Multi-Hop Knowledge Graph Reasoning with Reward Shaping

[Xi Victoria Lin](#), Richard Socher and Caiming Xiong

EMNLP 2018

C2. 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

C1. Compositional Learning of Embeddings for Relation Paths in Knowledge Bases and Text

Kristina Toutanova, [Xi Victoria Lin](#), Scott Wen-tau Yih, Hoifung Poon and Chris Quirk

ACL 2016

Other Publications

08. Towards LLMs for Everyone: Instruction Following, Knowledge Retrieval and Multilingualism

[Xi Victoria Lin](#)

Ph.D. Thesis 2023
University of Washington

07. Testing Cross-Database Semantic Parsers Using Canonical Utterances. *Best Paper Award*

Heather Lent, Semih Yavuz, Tao Yu, Tong Niu, Yingbo Zhou, Dragomir Radev, [Xi Victoria Lin](#).

Eval4NLP @EMNLP 2021

06. NeurIPS 2020 NLC2CMD Competition: Translating Natural Language to Bash Commands.

Mayank Agarwal, Tathagata Chakraborti, Quchen Fu, David Gros, [Xi Victoria Lin](#), Jaron Maene, Kartik Talamadupula, Zhongwei Teng, Jules White.

NeurIPS 2020
Competition Track

05. ColloQL: Robust Text-to-SQL Over Search Queries

Karthik Radhakrishnan, Arvind Srikantan, [Xi Victoria Lin](#)

Intex-Sempar @EMNLP 2020

04. 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 2020 Demonstration Track

03. Program Synthesis from Natural Language Using Recurrent Neural Networks

[Xi Victoria Lin](#), Chenglong Wang, Deric Pang, Kevin Vu, Luke Zettlemoyer, Michael D. Ernst

UWCSE-TR 2017

02. Multi-label Learning with Posterior Regularization

[Xi Victoria Lin](#), Sameer Singh, Luheng He, Ben Taskar, and Luke Zettlemoyer

MLNLP @NeurIPS 2014

01. Fine-grained Named Entity Classification in Machine Reading

[Xi Victoria Lin](#)

M.Sc. Thesis 2011
University of Oxford

Patents

Multi-hop knowledge graph reasoning with reward shaping

[Xi Victoria Lin](#), Richard Socher, Caiming Xiong

US Patent App. 16/051,309

Honors & Awards

2022 **Best Paper Honorable Mention**, The ACM CHI Conference on Human Factors in Computing Systems

2021 **Best Paper Award**, The 2nd Workshop on Evaluation & Comparison of NLP Systems

Eval4NLP @EMNLP

2014 **Student Travel Award**, NeurIPS Women in Machine Learning Workshop (WiML)

Montreal, Québec, CA

2011 **Doctoral Research Fellowship**, University of Pennsylvania

Philadelphia, PA, USA

2010 **Best Academic Performance Award**, Department of Electronic and Information Engineering, HKPU

Kowloon, HK

2010 **Hong Kong SAR Government Scholarship**, H.K. SAR Government

Kowloon, HK

Talks

- T8. **Retrieval-Augmented Dual Instruction Tuning** (invited talk)
Google NLP Reading Group 2024
Cohere for AI Interactive Reading Group 2023
LlamaIndex Webinar 2023
- T7. **Aligning Semi-Parametric Language Models** (guest lecture)
NYU DS-GA.1011 NLP 2023
- T6. **Knowledge and Skill Acquisition through LLM Pre-training and Instruction-tuning** (invited talk)
KLR @ICML 2023
- T5. **LLMs as Instructable Task Solvers: Lessons Learned and Future Possibilities** (invited talk)
Stanford NLP Seminar
Spring 2023
- T4. **Bridging Textual and Tabular Data: Is Attention All We Need?** (invited talk)
KR2ML @NeurIPS 2020
- T3. **Natural Language Interfaces to Databases** (guest lecture)
NYU CS2590 NLP 2020
- T2. **Reinforcement Learning for Knowledge Graph Reasoning** (invited talk)
Knowledge ConneXions 2020
- T1. **Creating The Future Of AI: How Salesforce Research Advances AI For CRM** (session speaker)
Dreamforce 2019

Technical Writings

- Talk to Your Data: One Model, Any Relational Database.**
Salesforce Research Blog 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/>
University of Washington, 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**
PH.D. IN COMPUTER SCIENCE
Seattle, WA, USA
2013-2017, 2021-2023
- University of Pennsylvania**
M.SC. IN COMPUTER SCIENCE (PH.D. TRANSFER)
Philadelphia, PA, USA
May 2013
- University of Oxford**
M.SC. IN COMPUTER SCIENCE
Oxford, UK
Sep. 2011
- The Hong Kong Polytechnic University**
B.ENG. IN ELECTRONIC AND INFORMATION ENGINEERING
Kowloon, HK
Aug. 2010
- Xi'an Jiaotong University**
SPECIAL CLASS FOR THE GIFTED YOUNG
Xi'an, Shaanxi, CN
Jan. 2008

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

2022 ARR, ACL, ICLR-DL4C
2021 ARR, ACL-NLP4Prog
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