

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 multi-modal LLM pre-training and neural information retrieval.

Experience

Meta, AGI Foundation

RESEARCH SCIENTIST

Menlo Park, CA, USA

Jan. 2021 - present

- **Llama4 multimodal pretraining**: scaling laws and data curriculum
- *Efficient abd sparse architecture design for early-fusion multimodal LLMs*: Mixture-of-transformers, MoMa, Chameleon
- *RAG and neural information retrieval*: RA-DIT
- *LLM fine-tuning and few-shot learning*: OPT-IML, XGLM, OPT

Salesforce Research

RESEARCH SCIENTIST

Palo Alto, CA, USA

Oct. 2017 - Dec. 2020

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

Education

University of Washington

PH.D. IN COMPUTER SCIENCE

Seattle, WA, USA

Advisor: Prof. Luke Zettlemoyer

University of Pennsylvania

M.SC. IN COMPUTER SCIENCE (PH.D. TRANSFER)

Philadelphia, PA, USA

University of Oxford

M.SC. IN COMPUTER SCIENCE

Oxford, UK

The Hong Kong Polytechnic University

B.ENG. IN ELECTRONIC AND INFORMATION ENGINEERING

Kowloon, HK

Preprints

* denotes equal contribution # research interns hosted by me

P2. MoMa: Efficient Early-Fusion Pre-training with Mixture of Modality-Aware Experts

Xi Victoria Lin^{*}, Akshat Shrivastava^{*}, Liang Luo, Srinivasan Iyer, Mike Lewis, Gargi Ghosh, Luke Zettlemoyer, Armen Aghajanyan^{*}.

ArXiv 2024

P1. Chameleon: Mixed-Modal Early-Fusion Foundation Models

Chameleon Team.

ArXiv 2024

Conference and Journal Publications

J1. Mixture-of-Transformers: A Sparse and Scalable Architecture for Multi-Modal Foundation Models

Weixin Liang (#), Lili Yu, Liang Luo, Srinivasan Iyer, Ning Dong, Chunting Zhou, Gargi Ghosh, Mike Lewis, Wen-tau Yih, Luke Zettlemoyer, Xi Victoria Lin.

TMLR 2025

C31. ReasonIR: Training Retrievers for Reasoning Tasks

Rulin Shao, Rui Qiao, Varsha Kishore, Niklas Muennighoff, Xi Victoria Lin, Daniela Rus, Bryan Kian Hsiang Low, Sewon Min, Wen-tau Yih, Pang Wei Koh, Luke Zettlemoyer.

COLM 2025

C30. DRAMA: Diverse Augmentation from Large Language Models to Smaller Dense Retrievers

Xueguang Ma, Xi Victoria Lin, Barlas Oguz, Jimmy Lin, Wen-tau Yih, Xilun Chen.

ACL 2025

C29. SelfCite: Self-Supervised Alignment for Context Attribution in Large Language Models Yung-Sung Chuang, Benjamin Cohen-Wang, Shannon Zejiang Shen, Zhaofeng Wu, Hu Xu, Xi Victoria Lin , James Glass, Shang-Wen Li, Wen-tau Yih.	ICML 2025
C28. Nearest Neighbor Speculative Decoding for LLM Generation and Attribution Minghan Li (#), Xilun Chen, Ari Holtzman, Beidi Chen, Jimmy Lin, Wen-tau Yih, Xi Victoria Lin .	NeurIPS 2024
C27. Sirius: Contextual Sparsity with Correction for Efficient LLMs Yang Zhou, Zhuoming Chen, Zhaozhuo Xu, Xi Victoria Lin , Beidi Chen.	NeurIPS 2024
C26. 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.	EMNLP 2024
C25. Branch-Train-MiX: Mixing Expert LLMs into a Mixture-of-Experts LLM Sainbayar Sukhbaatar, Olga Golovneva, Vasu Sharma, Hu Xu, Xi Victoria Lin , Baptiste Rozière, Jacob Kahn, Daniel Li, Wen-tau Yih, Jason Weston, Xian Li	COLM 2024
C24. Instruction-tuned Language Models are Better Knowledge Learners Zhengbao Jiang, Zhiqing Sun, Weijia Shi, Pedro Rodriguez, Chungting Zhou, Graham Neubig, Xi Victoria Lin , Wen-tau Yih, Srinivasan Iyer	ACL 2024
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, Wen-tau Yih.	ICLR 2024
C22. In-Context Pretraining: Language Modeling Beyond Document Boundaries Weijia Shi, Sewon Min, Maria Lomeli, Chungting Zhou, Margaret Li, Rich James, Xi Victoria Lin , Noah A. Smith, Luke Zettlemoyer, 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 (#), Srini Iyer, Dragomir Radev, Ves Stoyanov, Wen-tau Yih, Sida I. Wang*, Xi Victoria Lin *.	ICML 2023
C19. Training Trajectories of Language Models Across Scales. Mengzhou Xia, Mikel Artetxe, Chungting 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, Wen-tau Yih.	Findings of ACL 2023
T2. 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
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, Wen-tau Yih.	ACL 2022
T1. 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
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 , Nazeen 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 , 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 CHI 2022
2021 **Best Paper Award**, The 2nd Workshop on Evaluation & Comparison of NLP Systems Eval4NLP @EMNLP 2021

Service

SENIOR AREA CHAIR & AREA CHAIR	
Senior Area Chair	Generation Track, AACL-IJCNLP 2022
Area Editor/Chair	ACL Rolling Review (ARR), 2023-present
ORGANIZING COMMITTEE	
Demonstration Chair	NAACL 2021
WORKSHOPS ORGANIZED	
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, AACL, 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

Talks

- T9. **Large Language Models for Knowledge Intensive Problem Solving** (invited talk) OxML 2024
- 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)
CMU 18-789: Deep Generative Modeling 2024
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** (co-speaker) Dreamforce 2019

Panels

- P3. **Building Inclusive Communities at ICML** Social Event @ICML 2025
- P2. **Reasoning Capabilities of LLMs** KLR @ICML 2023
- P1. **Where and how can KRR benefit ML, and what should be explored?** KR2ML @NeurIPS 2020

Technical Writings

- Talk to Your Data: One Model, Any Relational Database.** Salesforce Research Blog 2020

Internships

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

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.

Teaching

CIS 520: Machine Learning

TEACHING ASSISTANT

University of Pennsylvania

Sep. 2012 - Dec. 2012

- Making exam problems; answering Piazza questions; holding office hours; grading