

Xiang Ren

ASSOCIATE PROFESSOR, COMPUTER SCIENCE DEPARTMENT, UNIVERSITY OF SOUTHERN CALIFORNIA

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Employment History

University of Southern California

ANDREW AND ERNA VITERBI EARLY CAREER CHAIR

ASSOCIATE PROFESSOR (WITH TENURE), COMPUTER SCIENCE DEPARTMENT

ASSISTANT PROFESSOR, COMPUTER SCIENCE DEPARTMENT

RESEARCH TEAM LEADER, INFORMATION SCIENCE INSTITUTES (BY COURTESY)

DIRECTOR, USC INTELLIGENCE AND KNOWLEDGE DISCOVERY RESEARCH LAB

Los Angeles, CA

10/2022 - present

04/2023 - present

02/2018 - 03/2023

05/2020 - present

02/2018 - present

Allen Institute for Artificial Intelligence

RESEARCH SCIENTIST (20%)

Los Angeles, CA

04/2022 - present

ACM SIGKDD

INFORMATION DIRECTOR, APPOINTED CHAIR

Los Angeles, CA

01/2019 - present

Snap Inc.

DATA SCIENCE ADVISOR

Santa Monica, CA

03/2018 - 03/2019

Stanford University

RESEARCH SCHOLAR, NLP GROUP & SNAP GROUP

Stanford, CA

05/2017 - 02/2018

Research Interests

NATURAL LANGUAGE PROCESSING

- Commonsense knowledge acquisition, representation, and reasoning
- Neural-symbolic models for building interpretable reasoning systems
- Explanation-based model learning, debugging, and refinement
- Knowledge graphs: construction & reasoning

MACHINE LEARNING

- Label efficient methods with weak/ distant supervisions
- Continual learning & rapid task generalization
- Graph representation learning, graph neural networks
- Interpretability; Post-hoc model explanation

Education History

Ph.D. in Computer Science

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN, IL, 08/2012 - 02/2018

Advisor: Jiawei Han; Committee members: Chengxiang Zhai, Heng Ji, Tarek Abdelzaher

2018 ACM SIGKDD Doctoral Dissertation Award, C. W. Gear Outstanding Graduate Student Award

M.Sc. in Computer Science

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN, IL, 04/2016

2016 David J. Kuck Outstanding M.S. Thesis Award (given to 1 student from the computer science department)

B.Eng. in Computer Science

ZHEJIANG UNIVERSITY, HANGZHOU, CHINA, 05/2008 - 06/2012

Excellence Senior Thesis Award, Computer Science Department, Graduate with honors, Chu Kochen Honors College

Selected Honors and Awards

- | | |
|------|---|
| 2022 | NAACL Outstanding Paper Award |
| 2022 | Andrew and Erna Viterbi Early Career Chair, USC |
| 2022 | Amazon Alexa Fairness in AI Award |
| 2022 | Google Research Scholar Award |
| 2021 | NSF CAREER Award |

2021	Facebook Faculty Research Award
2021	Best Paper Award, NAACL TrustNLP Workshop
2020	Best Paper Award Runner-up, The Web Conference (WWW)
2020	Runner-up, Best Paper Award, NeurIPS 2020 KR2ML Workshop
2020	Sony Faculty Research Award
2020	Snapchat Faculty Research Award
2019	Forbes' Asia 30 Under 30, Healthcare & Science
2019	JP Morgan AI Research Award
2019	Amazon Faculty Research Award
2019	Adobe Data Science Research Award
2018	Google Faculty Research Award
2018	Winner, ACM SIGKDD Doctoral Dissertation Award
2017	Winner, David J. Kuck Outstanding Thesis Award

Top Five Cited Papers (Total Citation on Google Scholar: 11,721)

- [1] Hierarchical Graph Representation Learning with Differentiable Pooling (**Citations: 1109**)
Rex Ying, Jiaxuan You, Chris Morris, **Xiang Ren**, William L. Hamilton, Jure Leskovec
Annual Conference on Neural Information Processing Systems (NIPS), 2018
- [2] Personalized Entity Recommendation: A Heterogeneous Information Network Approach (**Citations: 710**)
X. Yu, **X. Ren**, Y. Sun, Q. Gu, B. Sturt, U. Khandelwal, B. Norick, J. Han
7th ACM International Conference on Web Search and Data Mining (WSDM), 2014
- [3] GraphRNN: A Deep Generative Model for Graphs (**693**)
Jiaxuan You, Rex Ying, **Xiang Ren**, William L. Hamilton, Jure Leskovec
International Conference on Machine Learning (ICML), 2018
- [4] Dynamic Network Embedding by Modeling Triadic Closure Process (**Citations: 397**)
Lekui Zhou, Yang Yang, **Xiang Ren**, Fei Wu, Yueting Zhuang
The AAAI Conference on Artificial Intelligence (AAAI), 2018
- [5] Kagnet: Knowledge-aware graph networks for commonsense reasoning (**Citations: 297**)
Bill Yuchen Lin, Xinyue Chen, Jamin Chen, **Xiang Ren**.
Conference on Empirical Methods in Natural Language Processing (EMNLP), 2019

Research Grants, Sponsorship, Gifts

Total funding (own share) \approx \$5.3 million

- [10] **NSF CAREER: Teaching Machine through Human Explanations for Information Extraction.**
- **sole PI**, award# 2048211 (05-15-2021 - 04-30-2026), \$513,058 (total)
- **Role:** Build and maintain domain-specific information extraction systems with human explanations.
- [9] **NSF SciIP: Modeling the Invention, Dissemination, and Translation of Scientific Concepts.**
- **PI**, award# 1829268 (08-01-2018 – 08-31-2020), \$239,988 (own share); \$503,974 (total). **Co-PI:** Daniel MacFarland
- **Role:** Develop neural models for measuring and modeling processes of scientific innovation.
- [8] **DARPA Machine Commonsense (MCS): Multi-modal Open World Grounded Learning and Inference (MOWGLI).**
- **Co-PI** (06-01-2019 – 05-31-2023), \$1,026,796 (own share); \$8.6M (total).
- **PI:** Pedro Szekely. **Other Co-PIs:** Jay Pujara, Jure Leskovec, Sameer Singh, Deborah McGuinness
- **Role:** Address the challenge of machine common sense by reading the web and modeling structured knowledge.
- [7] **DARPA Knowledge Management at Scale and Speed (KMASS): LKNIC: Knowledge Needed in Context.**
- **Co-PI** (03-01-2022 – 02-31-2024), \$526,613 (own share); \$4.5M (total).
- **PI:** Jay Pujara. **Other Co-PIs:** Jonathan May, David Truam, Elizabeth Boschee
- **Role:** Revolutionize knowledge management through the use of a cognitively-inspired organization of multimodal background knowledge, a dialogue-driven agent for knowledge capture and dissemination.
- [6] **DARPA Grounded Artificial Intelligence Language Acquisition (GAILA): Learning Language from Image and Video Entities.**
- **Co-PI** (07-01-2019 – 5-31-2022), \$372,747 (own share); \$925k (total). **PI:** Ram Nevatia; **Other Co-PI:** Yan Liu.
- **Role:** Develop continual learning algorithms for vision-language models.
- [5] **Schmidt Family Foundation Grant: Using Artificial Intelligence to Support Cognitive Task Analysis.**
- **Co-investigator** (06-15-2019 – 09-30-2020), \$173k (own share); \$340k (total). **PI:** Kenneth Yates; **Co-PI:** Rao Machiraju
- **Role:** Automatic construction of procedure knowledge graphs from interview transcripts.

- [4] **IARPA Human Interpretable Attribution of Text Using Underlying Structure (HIATUS):** *SADIRI: Stylometric Authorship Discernment and Interpretation for Realistic Inputs.*
 - **Co-investigator** (09-10-2022 – 06-15-2025), \$411,156 (own share)
 - **PI:** Elizabeth Boschee. **Other Co-PIs:** Scott Miller
 - **Role:** Develop enhanced methods for explaining language models for authorship detection.
- [3] **IARPA Better Extraction from Text Towards Enhanced Retrieval (BETTER):** *Cross-Lingual Event & Argument Retrieval.*
 - **Co-investigator** (06-01-2019 – 11-30-2022), \$479,682 (own share); \$7.28M (total)
 - **PI:** Elizabeth Boschee. **Other Co-PIs:** Scott Miller, James Allan
 - **Role:** Develop enhanced methods for personalized, multilingual semantic extraction and retrieval from text.
- [2] **DARPA Influence Campaign Awareness and Sensemaking (INCAS)**
 - **Co-investigator**, (8-15-2021 – 12-31-2025), \$464,803 (own share); \$4.2M (total)
 - **PI:** Emilio Ferrara. **Other Co-PIs:** Alessandro Flammini, Jacob Shapiro, Jonathan May
 - **Role:** Develop explanation-based learning methods for campaign prediction models.
- [1] **DARPA Systematizing Confidence in Open Research and Evidence (SCORE):** *Macroscopic models for Reproducibility and Replicability of Research Claims in the Social and Behavioral Sciences.*
 - **Co-PI**, (10-01-2019 – 12-31-2021), \$274,104 (own share); \$1.83M (total). **PI:** Jay Pujara. **Other Co-PI:** Kristina Lerman
 - **Role:** Develop human-in-the-loop learning interfaces for information extraction from scientific papers.
- [0] **Gift awards from Industry (sole PI, \$830k+):** Google Research Scholar Award (\$60k), Facebook Sponsored Research Award (\$150k), Amazon Trust ML grant (\$70k), JP Morgan AI research award (\$150k), Sony faculty innovation award (\$100k), Google faculty research award (\$80k), Amazon research award (\$160k), Adobe data science award (\$80k), Snapchat gifts (\$20k)

Selected Media Coverage

2021	Communications of the ACM “The Best of NLP”
2020	The Register While text-generating AI can write like humans, it lacks common sense
2020	TechXplore New test reveals AI still lacks common sense
2020	Radio.com AI still lacks common sense according to new research
2020	Teachzine Study finds that an AI’s machine language still lacks common sense
2020	OneZero An A.I. Tool Has Been Passing Its Bias to Algorithms for Almost Two Decades
2020	Digital Trends Human moderators can’t stop online hate speech alone
2020	Science Daily Context reduces racial bias in hate speech detection algorithms.
2019	USC News Want to Know the Secret of a Good Idea? It Could be Hidden in Language.

Service

COMMUNITY: K-12 OUTREACH

Project pitch panel, Linked Learning Engineering Pathway at STEM Academy Hollywood, Los Angeles, 03/ 2021
 Project advising, Linked Learning Engineering Pathway at Theodore Roosevelt High School, Los Angeles, 03/ 2021
 Guest lecture, Theodore Roosevelt High School, Los Angeles, 02/ 2021
 Guest lecture, USC Viterbi Summer High School Intensive in Next-Generation Engineering (SHINE) program, 07/ 2020

PROFESSIONAL: ORGANIZER / CHAIR ON EXTERNAL ACTIVITIES

ACM SIGKDD Information Director, Sep 2018 - present
 Commonsense Representation and Reasoning (**CRR**), Workshop Co-chair, co-located with ACL 2022
 Federated Learning for NLP (**FedNLP**), Workshop Co-chair, co-located with ACL 2022
 Deep Learning for Low-resource NLP (**DeepLo**), Workshop Co-chair, co-located with NAACL 2022
 Trustworthy NLP (**TrustNLP**) Workshop Co-chair, co-located with NAACL 2021
 The 2nd Learning from Limited Labeled Data Workshop (**LLD**), Workshop Co-chair, co-located with ICLR 2019
 The 4th Workshop on Representation Learning for NLP (**Rep4NLP**), Workshop Co-chair, co-located with ACL 2019
 EMNLP Workshop on Deep Learning for Low-resource NLP (**DeepLo**), Workshop Co-chair, co-located with EMNLP 2019
 First Conference on Automated Knowledge Base Construction (**AKBC**), Workshop Co-chair, 2018

PROFESSIONAL: AREA CHAIR / SENIOR PC FOR INTERNATIONAL CONFERENCES

Annual Meeting of the Association for Computational Linguistics (**ACL**), Area Chair, 2019-2021, 2023
 Conference on Empirical Methods in Natural Language Processing (**EMNLP**), Area Chair, 2018-2022
 Annual Conference of the North American Chapter of the ACL (**NAACL**), Area Chair, 2021
 The International Conference on Learning Representations (**ICLR**), Area Chair, 2020-2022
 The Thirty-Fourth AAAI Conference on Artificial Intelligence (**AAAI**), Senior Area Chair, 2020
 International Conference on Machine Learning (**ICML**), Area Chair, 2022

PROFESSIONAL: PROGRAM COMMITTEE FOR INTERNATIONAL CONFERENCES

ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**): 2015-21
Conference on Neural Information Processing Systems (**NeurIPS**): 2019-21
International Conference on Machine Learning (**ICML**): 2019-20
Annual Meeting of the Association for Computational Linguistics (**ACL**): 2017-19
Conference on Empirical Methods in Natural Language Processing (**EMNLP**): 2015-18
International World Wide Web Conference (**WWW**): 2017-20
The AAAI Conference on Artificial Intelligence (**AAAI**): 2018-19
International Joint Conference on Artificial Intelligence (**IJCAI**): 2018-19
ACM International Conference on Web Search and Data Mining (**WSDM**): 2017-19
Annual Conference of the North American Chapter of the Association for Computational Linguistics (**NAACL**): 2018-19
ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR**): 2017-18
ACM Conference on Information and Knowledge Management (**CIKM**): 2017

PROFESSIONAL: JOURNAL REVIEWER

Transactions of the Association for Computational Linguistics (**TACL**)
IEEE Transactions on Knowledge and Data Engineering (**TKDE**)
ACM Transactions on Knowledge Discovery from Data (**TKDD**)

Teaching

Classes taught at USC

Spring22	Instructor , CSCI 566: Deep Learning and its Applications	USC
Fall21	Instructor , CSCI 699: Representation Learning for NLP	USC
Fall120	Instructor , CSCI 699: Representation Learning for NLP	USC
Fall2019	Instructor , CSCI 699: Advanced Topics in Representation Learning for NLP	USC
Spring19	Instructor , CSCI 699: Machine Learning for Knowledge Extraction and Reasoning	USC
Fall18	Instructor , CSCI 699: Introduction to Information Extraction.	USC

Conference tutorials

- [10] Learning from Task Instructions
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2023.
- [9] Knowledge-Augmented Methods for Natural Language Processing
The Annual Conference of the Association for Computational Linguistics (ACL), 2022.
- [8] Scalable Construction and Reasoning of Massive Knowledge Bases
The Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), 2018.
- [7] Scalable Construction and Querying of Massive Knowledge Bases
27th International World Wide Web Conference (WWW), 2018.
- [6] Construction and Querying of Large-scale Knowledge Bases
ACM Conference on Information and Knowledge Management (CIKM), 2017.
- [5] Mining Entity-Relation-Attribute Structures from Massive Text Corpora
23th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2017.
- [4] Building Structured Databases of Factual Knowledge from Massive Text Data
2017 International Conference on Management of Data (SIGMOD), 2017.
- [3] Constructing Structured Information Networks from Massive Text Corpora
26th International World Wide Web Conference (WWW), 2017.
- [2] Automatic Entity Recognition and Typing in Massive Text Data
2016 International Conference on Management of Data (SIGMOD), 2016.
- [1] Automatic Entity Recognition and Typing in Massive Text Corpora
25th International World Wide Web Conference (WWW), 2016.

Invited Talks

- [26] UMass NLP seminar, Apr 2023.
- [25] UPenn NLP seminar, Dec 2022.
- [24] HiTZ Basque Center for Language Technology, Sep 2022.
- [23] Allen Institute for Artificial Intelligence, Mar 2022.
- [22] Intel, Sep 2021.
- [21] Amazon Alexa NU Summit, April 2021.
- [20] UIUC NLP Seminar, Mar 2021.
- [19] Google X, Sep 2020.
- [18] CMU LTI Colloquium, Feb 2020.
- [17] UT Austin, Jan 2019.
- [16] Bloomberg, May 2019.
- [15] JP Morgan, May 2019.
- [14] IBM Research, Almaden, May 2019.
- [13] Stanford NLP Seminar, May 2019.
- [12] Stanford University, Aug 2017.
- [11] Peking University, Computer Science Department, Jun 2017.
- [10] Microsoft Research Asia, Jun 2017.
- [9] Tsinghua University, Computer Science Department, Jun 2017.
- [8] IBM Research Almaden, Jun 2017.
- [7] Duke University, Computer Science Department, March 2017.
- [6] University of California, Los Angeles, Computer Science Department, March 2017.
- [5] UC Davis, Computer Science Department, March 2017.
- [4] Georgia Tech, School of Computer Science, March 2017.
- [3] University of Southern California, Computer Science, Feb. 2017.
- [2] Google Research, August 2016.
- [1] Microsoft Research, Redmond, August 2015.

Mentoring

PhD students advised at USC: Aaron Chan (CS, 2017-present, sole advisor; **Graduation date:** December of 2022; **Placement:** Full-time research scientist at Meta AI), Yuchen Lin (CS, 2018-present, sole advisor; **Graduation date:** December of 2022; **Placement:** Postdoc scholar at University of Washington Seattle and Allen Institute of Artificial Intelligence), Shushan Arakelyan (CS, 2017-present, sole advisor), Woojeong Jin (CS, 2018-present, sole advisor), Qinyuan Ye (CS, 2019-present, sole advisor), Pei Zou (CS, 2019-present, co-advised w/ Jay Pujara, primary advisor), Xisen Jin (CS, 2019-present, sole advisor), Jun Yan (CS, 2019-present, sole advisor), Peifeng Wang (CS, 2019-present, co-advised w/ Pedro Szekely, secondary co-advisor), Soumya Sanyal (CS, 2020-present, sole advisor), Jacob Bremerman (CS, 2021-present, co-advised w/ Jonathan May, primary advisor), Brihi Joshi (CS, 2021-present, sole advisor), Albert Xu (CS, 2021-present, co-advised w/ Robin Jia, primary advisor)

PhD thesis committee member at USC: Sahil Garg (CS, 2014), Yaguang Li (CS, 2014), Fenxiao Chen (EE, 2014), Fenxiao Chen (EE, 2014), Akira Matsui (CS, 2017), Yilei Zeng (CS, 2017), Alana Shine (CS, 2017), Yu-Chuan Yen (CS, 2017); Tae Jin Park (ECE, 2015); Nazgol Tavabi (CS, 2015), Minh Pham (CS 2018), Rujun Han (CS 2018), Yury Zemlyanskiy (CS 2018), Akira Matsui (CS 2017), Aida Davani (CS, 2017), Brendan Kennedy (CS, 2016), Chaoyang He (CS, 2018), Thamme Gowda (CS, 2017)

Master students advised at USC (sole advisor): Hongtao Lin (CS, 2017-2018), Yozen Liu (CS, 2017-2018), Junyi Du (CS, 2017-2019), Ouyu Lan (CS, 2018-2019), Dongho Lee (CS, 2018-2020), Seyeon Lee (CS, 2019-present), Suji Kim (CS, 2019-present), Rahul Khanna (CS, 2019-present), Ravi Kiran Selvam, (CS, 2020-2021), Mahak Agarwal (CS, 2020-2021), Akshen Kadakia (CS, 2021-2022), Juan Zha (CS, 2021-present), Ziyi Liu (CS, 2021-present), Junfeng Liu (CS, 2021-present)

Undergraduate students advised at USC: Hao Chen (CS, 2018-2019), Yu Cao (CS progressive degree, 2018-2019, *USC Undergraduate Research Award*), Jamin Chen (CS, 2019-2020), Priya Irukulapati (CS, 2019-2020), Kelly Dickson (CS, 2019-2020), Ryan Moreno (CS, 2019-2020, *USC Undergraduate Research Award, Best Undergraduate Thesis Award*), Boyuan Long (CS, 2020-2021), Raymond Cheung (CS, 2020-2021), Wardah Jabeen (CS, 2020-2021), Adeline Liou (CS, 2020-2021), Jiashu Xu (CS, 2020-2021), Jordan McWilliams (CS, 2020-2021), Lindsey Feng (CS, 2021-2022), Kangmin Tan (CS, 2021-2022)

Publications

BOOK

Mining Structures of Factual Knowledge from Text: An Effort-Light Approach
Xiang Ren and Jiawei Han
Morgan & Claypool Publishers, 2018

REFEREED CONFERENCE ARTICLES

- [130] On Grounded Planning for Embodied Tasks with Language Models
Bill Yuchen Lin, Chengsong Huang, Qian Liu, Wenda Gu, Sam Sommerer, **Xiang Ren**
The AAAI Conference on Artificial Intelligence (AAAI), 2023
- [129] Retweet-BERT: Characterizing Echo Chambers by Leveraging Language Features and Information Diffusion in Social Media
Julie Jiang, **Xiang Ren**, and Emilio Ferrara
The International AAAI Conference on Web and Social Media (ICWSM), 2022
- [128] Reflect, Not Reflex: Inference-Based Common Ground Improves Dialogue Response Quality
Pei Zhou, Hyundong J. Cho, Pegah Jandaghi, Dong-Ho Lee, Bill Yuchen Lin, Jay Pujara, **Xiang Ren**
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2022
- [127] Machine Translation Robustness to Natural Asemantic Variation
Jacob Bremerman, **Xiang Ren**, Jonathan May
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2022
- [126] ER-Test: Evaluating Explanation Regularization Methods for NLP Models
Brihi Joshi, Aaron Chan, Ziyi Liu, Shaoliang Nie, Maziar Sanjabi, Hamed Firooz, **Xiang Ren**
Findings of The Conference on Empirical Methods in Natural Language Processing (EMNLP Findings), 2022
- [125] RobustLR: Evaluating Robustness to Logical Perturbation in Deductive Reasoning
Soumya Sanyal, Zeyi Liao, **Xiang Ren**
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2022
- [124] Eliciting Transferability in Multi-task Learning with Task-level Mixture-of-Experts
Qinyuan Ye, Juan Zha, **Xiang Ren**
Findings of The Conference on Empirical Methods in Natural Language Processing (EMNLP Findings), 2022
- [123] Unsupervised Cross-Task Generalization via Retrieval Augmentation
Bill Yuchen Lin, Kangmin Tan, Chris Miller, Beiwen Tian, **Xiang Ren**
Conference on Neural Information Processing Systems (NeurIPS), 2022
- [122] NS3: Neuro-Symbolic Semantic Code Search
Shushan Arakelyan, Anna Hakhverdyan, Miltiadis Allamanis, Christophe Hauser, Luis Antonio Garcia, **Xiang Ren**
Conference on Neural Information Processing Systems (NeurIPS), 2022
- [121] UniREx: A Unified Learning Framework for Language Model Rationale Extraction
Aaron Chan, Maziar Sanjabi, Lambert Mathias, Liang Tan, Shaoliang Nie, Xiaochang Peng, **Xiang Ren**, Hamed Firooz
International Conference on Machine Learning (ICML), 2022
- [120] Lifelong Pretraining: Continually Adapting Language Models to Emerging Corpora
Xisen Jin, Dejiao Zhang, Henghui Zhu, Wei Xiao, Shang-Wen Li, Xiaokai Wei, Andrew Arnold, **Xiang Ren**
Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), 2022
- [119] Sparse Distillation: Speeding Up Text Classification by Using Bigger Models
Qinyuan Ye, Madian Khabisa, Mike Lewis, Sinong Wang, **Xiang Ren**, Aaron Jaech
Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), 2022
- [118] FedNLP: A Research Platform for Federated Learning in Natural Language Processing
Bill Yuchen Lin, Chaoyang He, Zihang Zeng, Hulin Wang, Yufen Huang, Mahdi Soltanolkotabi, **Xiang Ren**, Salman Avestimehr
Conference of the North American Chapter of the Association for Computational Linguistics (Findings of NAACL), 2022
- [117] On the Robustness of Reading Comprehension Models to Entity Renaming
Jun Yan, Yang Xiao, Sagnik Mukherjee, Bill Yuchen Lin, Robin Jia, **Xiang Ren**
Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), 2022

- [116] NewsEdits: A Dataset of News Article Revision Histories and a Novel Document-Level Reasoning Challenge
Alexander Spangher, **Xiang Ren**, Jonathan May, Nanyun Peng
Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), 2022.
NAACL Outstanding Paper Award
- [115] FaiRR: Faithful and Robust Deductive Reasoning over Natural Language
Soumya Sanyal, Harman Singh, **Xiang Ren**
Annual Meeting of the Association for Computational Linguistics (ACL), 2022
- [114] A Good Prompt Is Worth Millions of Parameters?: Low-resource Prompt-based Learning for Vision-Language Models
Woojeong Jin, Yu Cheng, Yelong Shen, Weizhu Chen, **Xiang Ren**
Annual Meeting of the Association for Computational Linguistics (ACL), 2022
- [113] Fixing Errors in the Wild: 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 Yih
Annual Meeting of the Association for Computational Linguistics (ACL), 2022
- [112] Good Examples Make A Faster Learner: Simple Demonstration-based Learning for Low-resource NER
Dong-Ho Lee, Mahak Agarwal, Akshen Kadakia, Jay Pujara, **Xiang Ren**
Annual Meeting of the Association for Computational Linguistics (ACL), 2022
- [111] Think Before You Speak: Using Self-talk to Generate Implicit Commonsense Knowledge for Response Generation
Pei Zhou, Karthik Gopalakrishnan, Behnam Hedayatnia, Seokhwan Kim, Jay Pujara, **Xiang Ren**, Yang Liu, Dilek Hakkani-Tur
Annual Meeting of the Association for Computational Linguistics (ACL), 2022
- [110] Leveraging Visual Knowledge in Language Tasks: An Empirical Study on Intermediate Pre-training for Cross-Modal Knowledge Transfer
Woojeong Jin, Dong-Ho Lee, Chenguang Zhu, Jay Pujara, **Xiang Ren**
Annual Meeting of the Association for Computational Linguistics (ACL), 2022
- [109] KG-FiD: Infusing Knowledge Graph in Fusion-in-Decoder for Open-Domain Question Answering
Donghan Yu, Chenguang Zhu, Yuwei Fang, Wenhao Yu, Shuohang Wang, Yichong Xu, **Xiang Ren**, Yiming Yang, Michael Zeng
Annual Meeting of the Association for Computational Linguistics (ACL), 2022
- [108] Contextualized Scene Imagination for Generative Commonsense Reasoning
Peifeng Wang, Jonathan Zamora, Junfeng Liu, Filip Ilievski, Muhao Chen, **Xiang Ren**
International Conference on Representation Learning (ICLR), 2022
- [107] Refining Language Models with Compositional Explanations
Huihan Yao, Ying Chen, Qinyuan Ye, Xisen Jin, **Xiang Ren**
Annual Conference on Neural Information Processing Systems (NeurIPS), 2021 (**Spotlight**, ac rate: 3%)
- [106] SalkG: Learning From Knowledge Graph Explanations for Commonsense Reasoning
Aaron Chan, Boyuan Long, Jiashu Xu, Soumya Sanyal, Tanishq Gupta, **Xiang Ren**
Annual Conference on Neural Information Processing Systems (NeurIPS), 2021 (ac rate: 26%)
- [105] Gradient Based Memory Editing for Task-Free Continual Learning
Xisen Jin, Arka Sadhu, Junyi Du, **Xiang Ren**
Annual Conference on Neural Information Processing Systems (NeurIPS), 2021 (ac rate: 26%)
- [104] **CrossFit**: A Few-shot Learning Challenge for Cross-task Generalization in NLP
Qinyuan Ye, Yuchen Lin, **Xiang Ren**
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021 (ac rate: 24.6%)
- [103] **RICA**: Evaluating Robust Inference Capabilities Based on Commonsense Axioms
Pei Zhou, Rahul Khanna, Bill Yuchen Lin, Daniel Ho, Jay Pujara, **Xiang Ren**
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021 (ac rate: 24.6%)
- [102] *Learn Continually, Generalize Rapidly*: Lifelong Knowledge Accumulation for Few-shot Learning
Xisen Jin, Bill Yuchen Lin, Mohammad Rostami, **Xiang Ren**
The Conference on Empirical Methods in Natural Language Processing (Findings of EMNLP), 2021
- [101] Discretized Integrated Gradients for Explaining Language Models
Soumya Sanyal, **Xiang Ren**
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021 (ac rate: 24.6%)
- [100] On the Influence of Masking Policies in Intermediate Pre-training
Qinyuan Ye, Belinda Z. Li, Sinong Wang, Benjamin Bolte, Hao Ma, Wen-tau Yih, **Xiang Ren**, Madian Khabisa
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021 (ac rate: 24.6%)
- [99] *Lawyers are Dishonest?*: Quantifying Representational Harms in Commonsense Knowledge Resources
Ninareh Mehrabi, Pei Zhou, Fred Morstatter, Jay Pujara, **Xiang Ren**, Aram Galstyan
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021 (ac rate: 24.6%)
- [98] Probing Commonsense Explanation in Dialogue Response Generation
Pei Zhou, Pegah Jandaghi, Hyundong Cho, Bill Yuchen Lin, Jay Pujara, **Xiang Ren**
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021 (ac rate: 24.6%)

- [97] ECONET: Effective Continual Pretraining of Language Models for Event Temporal Reasoning
Rujun Han, **Xiang Ren**, Nanyun Peng
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021 (ac rate: 24.6%)
- [96] Extract, Denoise and Enforce: Evaluating and Improving Concept Preservation for Text-to-Text Generation
Yuning Mao, Wenchang Ma, Deren Lei, Jiawei Han, **Xiang Ren**
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021 (ac rate: 24.6%)
- [95] Cross-Attention is All You Need: Adapting Pretrained Transformers for Machine Translation
Mozhdeh Gheini, **Xiang Ren**, Jonathan May
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021 (ac rate: 24.6%)
- [94] MSD: Saliency-aware Knowledge Distillation for Multimodal Understanding
Woojeong Jin, Maziar Sanjabi, Shaoliang Nie, Liang Tan, **Xiang Ren**, Hamed Firooz
The Conference on Empirical Methods in Natural Language Processing (Findings of EMNLP), 2021
- [93] **RockNER**: Evaluating the Robustness of Named Entity Recognition with Natural Adversarial Attacks
Bill Yuchen Lin, Wenyang Gao, Jun Yan, Ryan Moreno, **Xiang Ren**
The Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021 (ac rate: 24.6%)
- [92] **ForecastQA**: A Question Answering Challenge for Event Forecasting
Woojeong Jin, Rahul Khanna, Suji Kim, Dong-Ho Lee, Fred Morstatter, Aram Galstyan, **Xiang Ren**
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- [91] Learning to Generate Task-specific Adapters from Task Description
Qinyuan Ye, **Xiang Ren**
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Bill Yuchen Lin, Seyeon Lee, Xiaoyang Qiao, **Xiang Ren**
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- [89] AdaTag: Multi-Attribute Value Extraction from Product Profiles with Adaptive Decoding
Jun Yan, Nasser Zalmout, Yan Liang, Christan Grant, **Xiang Ren**, Xin Luna Dong
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- [88] Learning Contextualized Knowledge Structures for Commonsense Reasoning
Jun Yan, Mrigank Raman, Aaron Chan, Tianyu Zhang, Ryan Rossi, Handong Zhao, Sungchul Kim, Nedim Lipka, **Xiang Ren**
Annual Meeting of the Association for Computational Linguistics (Findings of ACL), 2021
- [88] **RiddleSense**: A Challenge Dataset for Answering Riddle-Style Commonsense Questions
Bill Yuchen Lin, Ziyi Wu, Yichi Yang, Dong-Ho Lee, **Xiang Ren**
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- [87] Do Language Models Perform Generalizable Commonsense Inference?
Peifeng Wang, Filip Ilievski, Muhao Chen, **Xiang Ren**
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- [86] Semi-Automated Protocol Disambiguation and Code Generation
Jane Yen, Tamás Lévai, Qinyuan Ye, **Xiang Ren**, Ramesh Govindan, Barath Raghavan
Annual conference of ACM SIGCOMM (SIGCOMM), 2021
- [85] Pre-training Text-to-Text Transformers for Concept-centric Common Sense
Wangchunshu Zhou, Dong-Ho Lee, Ravi Kiran Selvam, Seyeon Lee, Bill Yuchen Lin, **Xiang Ren**
International Conference on Representation Learning (ICLR), 2021
- [84] Learning to Deceive Knowledge Graph Augmented Models via Targeted Perturbation
Mrigank Raman, Siddhant Agarwal, Peifeng Wang, Aaron Chan, Hansen Wang, Sungchul Kim, Ryan Rossi, Handong Zhao, Nedim Lipka, **Xiang Ren**
International Conference on Representation Learning (ICLR), 2021
Best Paper Award Runner-up at NeurIPS 2020 KR2ML Workshop
- [83] Differentiable Open-Ended Commonsense Reasoning
Bill Yuchen Lin, Haitian Sun, Bhuwan Dhingra, Manzil Zaheer, **Xiang Ren**, William W. Cohen
Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), 2021 (ac rate: 26%)
- [82] On Transferability of Bias Mitigation Effects in Language Model Fine-Tuning
Xisen Jin, Francesco Barbieri, Brendan Kennedy, Aida Mostafazadeh Davani, Leonardo Neves, **Xiang Ren**
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- [81] X-METRA-ADA: Cross-lingual Meta-Transfer learning Adaptation to Natural Language Understanding
Meryem M'hamdi, Doo Soon Kim, Franck Dernoncourt, Trung Bui, **Xiang Ren**, Jonathan May
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- [80] TaxoClass: Hierarchical Multi-Label Text Classification Using Only Class Names
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- [79] IsoBN: Fine-Tuning BERT with Isotropic Batch Normalization
Wenxuan Zhou, Bill Yuchen Lin, **Xiang Ren**
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Wenjie Hu, Yang Yang, Ziqiang Cheng, Carl Yang, **Xiang Ren**
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Xisen Jin, Junyi Du, Arka Sadhu, Ram Nevatia, **Xiang Ren**
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- [76] Scalable Multi-Hop Relational Reasoning for Knowledge-Aware Question Answering
Yanlin Feng, Xinyue Chen, Bill Yuchen Lin, Peifeng Wang, Jun Yan, **Xiang Ren**
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- [65] Learning to Contextually Aggregate Multi-Source Supervision for Sequence Labeling
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Yuning Mao, Liyuan Liu, Qi Zhu, X. Ren, Jiawei Han
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Brendan Kennedy*, Xisen Jin*, Aida Mostafazadeh Davani, Morteza Dehghani, X. Ren.
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- [61] Temporal Attribute Prediction via Joint Modeling of Multi-Relational Structure Evolution
Sankalp Garg*, Navodita Sharma*, Woojeong Jin, **Xiang Ren**.
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- [60] Alleviate Dataset Shift Problem in Fine-grained Entity Typing with Virtual Adversarial Training
Haochen Shi, Siliang Tang, Xiaotao Gu, Bo Chen, **Xiang Ren**.
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- [59] Learning from Explanations with Neural Execution Tree
Ziqi Wang, Yujia Qin, Wenxuan Zhou, Jun Yan, Qinyuan Ye, Leonardo Neves, Zhiyuan Liu, **Xiang Ren**.
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Xisen Jin, Junyi Du, Zhongyu Wei, Xiangyang Xue, **Xiang Ren**.
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- [57] NERO: A Neural Rule Grounding Framework for Label-Efficient Relation Extraction
Wenxuan Zhou, Hongtao Lin, Bill Yuchen Lin, Ziqi Wang, Junyi Du, Leonardo Neves, **Xiang Ren**.
The Web Conference (WWW), 2020. **Runner-up of Best Paper Award**
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Bill Yuchen Lin, Xinyue Chen, Jamin Chen, **Xiang Ren**.
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C. Fu, Y. Zhang, D. Cai, **X. Ren**.
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- [44] Mining Entity Synonyms with Efficient Neural Set Generation
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- [41] Jointly Learning Explainable Rules for Recommendation with Knowledge Graph
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Quan Yuan, **Xiang Ren**, Wenqi He, Chao Zhang, Xinhe Geng, Lifu Huang, Heng Ji, Chin-Yew Lin, Jiawei Han.
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Rex Ying, Jiaxuan You, Chris Morris, **Xiang Ren**, William L. Hamilton, Jure Leskovec
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Lucas Liu, **Xiang Ren**, Jingbo Shang, Jian Peng, Jiawei Han
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- [35] GraphRNN: A Deep Generative Model for Graphs
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- [33] HiExpan: Task-Guided Taxonomy Construction by Hierarchical Tree Expansion
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- [30] Indirect Supervision for Relation Extraction using Question-Answer Pairs
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