Liyuan Liu

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"We are trying to prove ourselves wrong as quickly as possible, because only in that way can we find progress. - Richard Feynman"

RESEARCH INTEREST

As growing computation power and data volume keep breaking the glass ceiling for neural models, there is no reason to doubt the next breakthrough would be driven by more resources, or alternatively, better productivity. **Given this resource-dependent nature, I recognize resource productivity as the bottleneck and pursue resource-economical deep learning.**

EDUCATION

UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN (UIUC)   *Illinois, USA*
PH.D. IN COMPUTER SCIENCE   *September 2016 – Present*
- Advisor: Prof. Jiawei Han

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA (USTC)   *Hefei, China*
B.E. IN COMPUTER SCIENCE   *September 2012 – June 2016*
- Advisor: Prof. Linli Xu. Shortlisted for the Guo Moruo Scholarship and graduated *summa cum laude*.

SELECTED HONORS & AWARDS

Winner of the Topcoder Arabic NER Challenge   2018
- **Ranked 1st among 137 registrants and 220 submissions.**

Guo Moruo Scholarship   2015
- **Highest honor for USTC undergraduate students.**

Google Excellent Scholarship   2015
- **Only 58 graduate and undergraduate students shortlisted nationwide.**

Yee Fellowship Award   2020
Data Mining Group Research Award   2019, 2018, 2017
Samsung Scholarship   2015
Tencent Innovative Scholarship   2014
Seagate Scholarship   2013

EMPLOYMENT

AI Lab @ Tencent   *WA, USA*
RESEARCH INTERN   *May 2020 – Auguest 2020*

Deep Learning Group @ MICROSOFT RESEARCH REDMOND   *IL, USA*
PART-TIME RESEARCHER, ADVISOR: DR. XIAODONG GU & DR. JIANFENG GAO   *January 2020 – May 2020*

D365 AI & MSR @ MICROSOFT   *WA, USA*
RESEARCH INTERN, ADVISOR: DR. WEIZHU CHEN & DR. JIANFENG GAO   *May 2019 – Auguest 2019*

AllenNLP @ AI2   *WA, USA*
RESEARCH INTERN, ADVISOR: DR. MATTHEW E. PETERS   *May 2018 – August 2018*

Social Computing Group @ MICROSOFT RESEARCH ASIA   *Beijing, China*
RESEARCH INTERN, ADVISOR: DR. RUIHUA SONG   *July 2015 – May 2016*

Laboratory of Semantic Computing and Data Mining @ USTC *Anhui, China*
UNDERGRADUATE RESEARCHER, ADVISOR: PROF. LINLI XU *October 2013 – June 2015*

PROFESSIONAL SERVICE

PC Member   ACL2020, WWW2020, AAAI2020, IJCAI2020, EMNLP2019, LLD2019, ACL2019, NAACL2019, AAAI2019, EMNLP2018

SELECTED PROJECTS & PUBLICATIONS

Project Highlights   RAdam (2k stars on the Github); LM-LSTM-CRF (700 stars on the Github); Torch-Scope (30k downloads).

*indicates equal contribution.

[1] Chengyu Dong, **Liyuan Liu**, Zichao Li, and Jingbo Shang. "Towards Adaptive Residual Network Training: A Neural-ODE Perspective." in *Proc. of the Thirty-seventh International Conference on Machine Learning (ICML'20).*

[2] **Liyuan Liu**, Xiaodong Liu, Jianfeng Gao, Weizhu Chen, and Jiawei Han. "Understanding the Difficulty of Training Transformers." in *arXiv:2004.08249 [cs].*

[3] Yuning Mao, **Liyuan Liu**, Qi Zhu, Xiang Ren, and Jiawei Han. "Facet-Aware Evaluation for Extractive Summarization." in *Proc. of 2020 Annual Conf. of the Association for Computational Linguistics (ACL'20).*

[4] **Liyuan Liu**, Haoming Jiang, Pengcheng He, Weizhu Chen, Xiaodong Liu, Jianfeng Gao, and Jiawei Han. "On the Variance of the Adaptive Learning Rate and Beyond." in *Proc. of 2020 Conf. on Learning Representations (ICLR' 20).*

[5] Zihan Wang*, Jingbo Shang*, **Liyuan Liu***, Lihao Lu, Jiacheng Liu, and Jiawei Han. "CrossWeigh: Training Named Entity Tagger from Imperfect Annotations" in *Proc. of 2019 Conf. on Empirical Methods in Natural Language Processing (EMNLP'19).*

[6] Qinyuan Ye*, **Liyuan Liu***, Maosen Zhang, and Xiang Ren. "Looking Beyond Label Noise: Shifted Label Distribution Matters in Distantly Supervised Relation Extraction" in *Proc. of 2019 Conf. on Empirical Methods in Natural Language Processing (EMNLP'19).*

[7] Ying Lin, **Liyuan Liu**, Heng Ji, Dong Yu, and Jiawei Han. "Reliability-aware Dynamic Feature Composition for Name Tagging" in *Proc. of the 57th Annual Meeting of the Association for Computational Linguistics (ACL' 19).*

[8] Yujin Yuan, **Liyuan Liu**, Siliang Tang, Zhongfei Zhang, Yueting Zhuang, Fei Wu, and Xiang Ren. "Cross-relation Cross-bag Attention for Distantly-supervised Relation Extraction" in *Proc. of 2019 AAAI Conf. on Artificial Intelligence (AAAI'19).*

[9] Jingbo Shang*, **Liyuan Liu***, Xiaotao Gu, Xiang Ren, Teng Ren, and Jiawei Han "Learning Named Entity Tagger using Domain-Specific Dictionary." in *Proc. of 2018 Conf. on Empirical Methods in Natural Language Processing (EMNLP'18).*

[10] **Liyuan Liu**, Xiang Ren, Jingbo Shang, Jian Peng, and Jiawei Han. "Efficient Contextualized Representation: Compressing Language Models for Sequence Labeling." in *Proc. of 2018 Conf. on Empirical Methods in Natural Language Processing (EMNLP'18).*

[11] **Liu, Liyuan**, Jingbo Shang, Frank Xu, Xiang Ren, Huan Gui, Jian Peng, and Jiawei Han. "Empower Sequence Labeling with Task-Aware Neural Language Model." in *Proc. of 2018 AAAI Conf. on Artificial Intelligence (AAAI'18).*

[12] **Liyuan Liu***, Xiang Ren*, Qi Zhu, Shi Zhi, Huan Gui, Heng Ji, and Jiawei Han. "Heterogeneous Supervision for Relation Extraction: A Representation Learning Approach.", in *Proc. of 2017 Conf. on Empirical Methods in Natural Language Processing (EMNLP'17).*

[13] Chao Zhang, **Liyuan Liu**, Dongming Lei, Quan Yuan, Honglei Zhuang, Tim Hanratty, and Jiawei Han, "TrioVecEvent: Embedding-Based Online Local Event Detection in Geo-Tagged Tweet Streams", in *Proc. of 2017 ACM SIGKDD Conf. on Knowledge Discovery and Data Mining (KDD'17).*

[14] **Liyuan Liu**, Linli Xu, Zhen Wang, and Enhong Chen, "Community Detection Based on Structure and Content: A Content Propagation Perspective", in *Proc. of 2016 Conf. on Data Mining (ICDM'16).*