

Fangzheng (Frank) Xu

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Research Interests

Natural language processing, deep learning, computational social science, data mining, human-computer interaction.

Education

Shanghai Jiao Tong University

M.Sc. IN COMPUTER SCIENCE

Shanghai, China

Sep. 2016 - Present

- Research Field: Natural language processing, text mining, knowledge discovery, spatial-temporal data mining
- Advisor: Prof. Kenny Q. Zhu

Shanghai Jiao Tong University

B.ENG. IN COMPUTER SCIENCE, HONOR DEGREE (IEEE HONORED CLASS)

Shanghai, China

Sep. 2012 - Jun. 2016

- Thesis: *Traffic Prediction for Urban Planning*
- **Best Bachelor's Thesis Award (Top 1% in SJTU & Top 1 in the CSE Department)**
- Advisor: Prof. Kenny Q. Zhu

Honors & Awards

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|------|---|--------------|
| 2018 | Best Poster Award Honorable Mention, WWW | Lyon, France |
| 2017 | Second place in emerging and rare entity recognition shared task, WNUT@EMNLP | Copenhagen |
| 2016 | Best Thesis Award in Bachelor's Thesis Defense (Top 1% in SJTU & Top 1 in the CSE Department) | SJTU |
| 2015 | Excellence Award in <i>DataBang</i> Data Innovation Contest | SJTU |
| 2015 | Second Place in EMC Smart Campus Open Data Contest | SJTU |

Academic & Professional Experience

Human-Computer Interaction Institute, Carnegie Mellon University

Pittsburgh, PA

VISITOR

Nov. 2018 - Present

- Advisor: Prof. Jeffrey P. Bigham
- Working on enabling human by incorporating the machine learning techniques, including NLP and CV into human daily life. Help blind people perceive the world and use legacy interfaces, extract knowledge from manuals for the disabled, enabling conversational efficiency and memory with AI assistants, etc.
- Research paper under progress.

SAILING Group, Carnegie Mellon University

Pittsburgh, PA

VISITOR

Mar. 2018 - May. 2018

- Advisor: Zhiting Hu, Prof. Eric Xing
- Worked on text content manipulation. Aim to generate text based on data. Instead of generating from scratch, we generate by "modifying" critical information upon existing retrieved text through domain knowledge by relevant data. The task differs from traditional text style transfer and we propose a dual-copy mechanism.
- Research paper under progress.

Data Mining Research Group, University of Illinois at Urbana-Champaign

Urbana, IL

VISITOR

Jun. 2017 - Dec. 2017

- Advisor: Prof. Jiawei Han (UIUC), Prof. Xiang Ren (USC)
- Worked on various information extraction tasks such as relation extraction, sequence labeling, event extraction, open information extraction, etc.
- Research papers accepted by WSDM 2018, AAAI 2018, KBCOM 2018, WWW 2018.

ADAPT Lab, Shanghai Jiao Tong University

Shanghai, China

RESEARCH ASSISTANT

Oct. 2015 - Present

- Advisor: Prof. Kenny Q. Zhu
- Working on natural language processing, computational social science, information extraction, text mining, with papers published in various venues. I used to work on traffic prediction and urban computing as well.

- Developed open APIs, crawlers, backend code with mainly Python and PHP.
- Designed algorithm modules to prevent spam and inappropriate posts, e.g. posts filtering and classification, image identification.

IIOT Lab, Shanghai Jiao Tong University

Shanghai, China

UNDERGRADUATE RESEARCH ASSISTANT

Jan. 2015 - Jul. 2015

- Advisor: Prof. Xinbing Wang
- Contributed to academic crawler, paper topic modeling, search algorithms and infrastructure for *AceMap*, an academic search system.

OMNILAB, Shanghai Jiao Tong University

Shanghai, China

UNDERGRADUATE RESEARCH ASSISTANT

Jun. 2014 - Dec. 2014

- Advisor: Prof. Yaohui Jin
- Contributed to open data platform and data mining projects from web crawlers to data analysis and visualizations.

Teaching Experience

2016 **Teaching Assistant**, Database System Technology (SE305), in English

SJTU

Publication

** indicates equal contribution, Google Scholar Citations: 47*

PREPRINTS

Text Content Manipulation*Under anonymous submission***Parsimonious Morpheme Segmentation with an Application to Word Embeddings**Ahmed El-Kishky, [Frank F. Xu](#), Aston Zhang, Jiawei Han.*Under review of SIAM International Conference on Data Mining (SDM), 2019***Incorporating Diversity into Influential Node Mining**Yu Zhang, [Frank F. Xu](#), Tianshu Lyu, Xiang Ren, Jiawei Han.*arXiv: 1810.05959*

CONFERENCE PAPERS

Mining Cross-Cultural Differences and Similarities in Social Media[Frank F. Xu](#)*, Bill Y. Lin*, Kenny Q. Zhu, Seung-won Hwang.*In Proceedings of 56th Annual Meeting of the Association for Computational Linguistics (ACL), 2018***Commonsense Located Near Relation Extraction**[Frank F. Xu](#)*, Bill Y. Lin*, Kenny Q. Zhu.*In Proceedings of 56th Annual Meeting of the Association for Computational Linguistics (ACL), 2018***ExtRA: Extracting Prominent Review Aspects from Customer Feedback**Zhiyi Luo, Shanshan Huang, [Frank F. Xu](#), Bill Yuchen Lin, Hanyuan Shi, Kenny Zhu.*In Proceedings of Conference on Empirical Methods in Natural Language Processing (EMNLP), 2018***Empower Sequence Labeling with Task-Aware Neural Language Model**Liyuan Liu, Jingbo Shang, [Frank F. Xu](#), Xiang Ren, Huan Gui, Jian Peng, Jiawei Han.*In Proceedings of Thirty-second AAAI Conference on Artificial Intelligence (AAAI), 2018***ReQuest: Indirect Supervision for Relation Extraction using Question-Answer Pairs**Zeqiu Wu, Xiang Ren, [Frank F. Xu](#), Ji Li, Jiawei Han.*In Proceedings of The 11th ACM International Conference on Web Search and Data Mining (WSDM), 2018***Mining Cross-Cultural Differences of Named Entities: A Preliminary Study**[Frank F. Xu](#)*, Bill Y. Lin*, Kenny Q. Zhu.*Presented on First Workshop on Knowledge Base Construction, Reasoning and Mining (KBCOM) at WSDM, 2018***Entropy-Based Subword Mining with an Application to Word Embeddings**Ahmed El-Kishky, [Frank F. Xu](#), Aston Zhang, Stephen Macke, Jiawei Han.*In Proceedings of the Second Workshop on Subword/Character Level Models (SCLem) at NAACL, 2018***Open Information Extraction with Global Structure Constraints**Qi Zhu, Xiang Ren, Jingbo Shang, Yu Zhang, [Frank F. Xu](#), Jiawei Han.*In Proceedings of The Web Conference (WWW Poster), 2018 (Best Poster Award Honorable Mention)*

Commonsense LocatedNear Relation Extraction from Large Text

Frank F. Xu*, Bill Y. Lin*, Kenny Q. Zhu.

Presented on 6th Workshop on Automated Knowledge Base Construction (AKBC) at NIPS, 2017

Multi-channel BiLSTM-CRF Model for Emerging Named Entity Recognition in Social Media

Frank F. Xu*, Bill Y. Lin*, Zhiyi Luo, Kenny Q. Zhu.

In Proceedings of the 3rd Workshop on Noisy User-generated Text (W-NUT) at EMNLP, 2017 (2nd place in the shared task)

Transfer Learning for Traffic Speed Prediction: A Preliminary Study

Frank F. Xu*, Bill Y. Lin*, Eve Q. Liao, Kenny Q. Zhu.

In Proceedings of SmartIoT 2018 Workshop: AI enhanced IoT data processing for Intelligent Applications at AAAI, 2018

Cross-region Traffic Prediction for China on OpenStreetMap.

Frank F. Xu, Bill Y. Lin, Qi Lu, Yifei Huang and Kenny Q. Zhu.

In Proceedings of the 9th ACM SIGSPATIAL International Workshop on Computational Transportation Science, 2016

THESIS

Traffic Prediction for Urban Planning

Frank F. Xu

Bachelor's Thesis (Best Thesis Award, Top 1%), Shanghai Jiao Tong University, 2016

Professional Service

PROGRAM COMMITTEE

First Workshop on Knowledge Base Construction, Reasoning and Mining at WSDM 2018 (KBCOM)

CONFERENCE REVIEWER

AAAI Conference on Artificial Intelligence (AAAI 2016-17)

ACM International Conference on Information and Knowledge Management (CIKM 2017)

ACM International Conference on Web Search and Data Mining (WSDM 2018)

The Web Conference (WWW 2018)

ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2018)

The Annual Meeting of the Association for Computational Linguistics (ACL 2018)

Referee

Prof. Kenny Q. Zhu

Professor of Computer Science

Shanghai Jiao Tong University, Shanghai

Homepage: <http://cs.sjtu.edu.cn/~kzhu/>

Email: kzhu@cs.sjtu.edu.cn

Prof. Jiawei Han

Abel Bliss Professor of Computer Science

University of Illinois at Urbana-Champaign

Homepage: <http://hanj.cs.illinois.edu/>

Email: hanj@cs.uiuc.edu

Prof. Xiang Ren

Assistant Professor of Computer Science

University of Southern California and Information Science Institute

Homepage: <http://www-bcf.usc.edu/~xiangren/>

Email: xiangren@usc.edu

Prof. Jeffrey P. Bigham

Associate Professor of Computer Science

Carnegie Mellon University

Homepage: <https://www.cs.cmu.edu/~jbigham/>

Email: jbigham@cs.cmu.edu