

# 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 graph, 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

2018	Best Poster Award Honorable Mention, WWW	Lyon, France
2017	2nd in emerging and rare entity recognition shared task, WNUT@EMNLP	Copenhagen
2016-18	SJTU Graduate Student Scholarship	SJTU
2016	Best Bachelor's Thesis Award (Top 1% in SJTU & Top 1 in the CSE Department)	SJTU
2015	Excellence Award in <i>DataBang</i> Data Innovation Contest	Shanghai
2015	2nd in EMC Smart Campus Open Data Contest	Shanghai

## Academic & Professional Experience

### HCII, Carnegie Mellon University

VISITOR

Pittsburgh, PA

Nov. 2018 - Present

- Advisor: Prof. Jeffrey P. Bigham
- Working on AI and human collaboration, enabling human by incorporating multimodal ML techniques, including NLP and CV into daily life. Help blind people perceive the world, construct knowledge and understand natural language queries with state-action graphs of user interface, help memorize and organize events from users' daily conversations, etc.

### SAILING Group, Carnegie Mellon University

VISITOR

Pittsburgh, PA

Mar. 2018 - May. 2018

- Advisor: Zhiting Hu, Prof. Eric Xing
- Worked on deep generative models for natural language. Extend data-to-text generation to text content manipulation. Instead of generating from scratch, we generate by "modifying" other sentences retrieved through domain knowledge with the critical information in data records. 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

VISITOR

Urbana, IL

Jun. 2017 - Dec. 2017

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

### ADAPT Lab, Shanghai Jiao Tong University

RESEARCH ASSISTANT

Shanghai, China

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 data mining, traffic prediction and urban computing as well.

- Developed open APIs, crawlers, backend code with mainly Python and PHP.
- Designed ML 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
- Worked on open data platform for urban air quality, human mobility and social media, ranging 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: 48

### 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***Automatic Extraction of Commonsense Located Near Knowledge**[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 Located Near Relation Extraction**

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**

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### **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, NAACL 2019)

## **Reference**

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### **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](mailto: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](mailto: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](mailto: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](mailto:jbigham@cs.cmu.edu)