Zhe Xu

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EDUCATION

Fudan University (FDU), Shanghai, China Sep.2014 – Jul.2018

- **B.E. in Electronic Engineering**
  Computer-Related GPA: 3.77/4.0
  Computer-Related Courses: Computer Architecture (4.0/4.0), Python programming (4.0/4.0), Probability Theory (4.0/4.0), Microcomputer Architecture and Interfacing Experiments (4.0/4.0), Information Theory (3.7/4.0), Introduction to Network Science (3.7/4.0), C/C++ (3.3/4.0)
- **Minor: Data Science**
  Core Courses: Data Structure, Design and Analysis of Algorithms, Introduction to Database Systems

PUBLICATION

- Jiaqing Liang, **Zhe Xu**, Yanghua Xiao, "Incorporating Complicated Rules into Deep Generative Models", in submission.
- Haiyun Jiang, **Zhe Xu,** Yanghua Xiao, Deqing Yang, Wei Wang, "Relation Extraction: From the Perspective of Implicit Relation Reasoning", in submission.
- Haiyun Jiang, Yanghua Xiao, Deqing Yang, **Zhe Xu**, Wei Wang, "Hierarchical Conceptual Labeling", in submission.

RESEARCH PROGRAMS

Shanghai Key Laboratory of Data Science | Research Assistant
Supported by the National Science Foundation under Grant No.IIS-1651203, IIS-1715385, and IIS-1743040
Research Direction: Knowledge Graph, Text Generation, Relation Extraction, Entity Typing
Advisor: Yang-Hua Xiao, Associate Professor at School of Computer Science, Fudan University

Incorporating Complicated Rules into Deep Generative Models Mar.2017 – Sep.2017

- Inspired by GAN model, proposed a general framework containing a trained Rule Discriminator concatenated with Generator to improve generative tasks.
- Experimented with various generative tasks including Hand-written Digits Generation, Text Generation, and Conditional Chinese Question Generation.
- Improved results in aspects which are hard to learn by tuning model or providing more data.

Relation Extraction: From the Perspective of Implicit Relation Reasoning Feb.2017 – Sep.2017

- Constructed new dataset from Wiki and Freebase, filtered noisy patterns and sentences.
- Proposed a Relation Extraction model based on implicit relation reasoning by mining the statistical information of surface patterns and added priori knowledge to guide the learning of model.
- Model has high accuracy and strong interpretability.

Entity Typing with DNN and Word Embedding Apr.2017 – Sep.2017

*Baseline by Li Dong, Fu-Ru Wei, etc. A Hybrid Neural Model for Type Classification of Entity Mentions. In IJCAI, 2015.

- Replaced Multilayer Perceptron with Bidirectional LSTM to make full use of text sequence.
- Added character-level Word Embedding by inputting characters into Bidirectional LSTM.
- Improved Ma-F1 score from 0.429 to 0.563, Mi-F1 score from 0.432 to 0.581, tested (average) on dataset: Wiki, OntoNotes, and BBN.

Classical Chinese Poetry Generation Dec.2016 – Feb.2017

*Baseline by Jia-Qing Liang, Ph.D. at School of Computer Science, Fudan University.

- Improved model by adding part of speech information crawled from online dict and gave every word with related topics which are determined by a Co-occurrence Graph constructed from corpus.
- Generated poems conforming to the rules of grammar better with closer relevance to specific topics.

Demo URL: http://kw.fudan.edu.cn/ddemos/poem/

Hierarchical Conceptual Labelling Dec.2016 – Sep.2017

- Replaced BoW (Bag of Words) by hierarchically structured conceptual labelling based on Bayesian Rose Trees. Proposed a denoising step based on an empirical formula.
- Method was proven effective both on Synthetic data and Real data. BoW information can be understood and used better for tasks like Recommendation System.

Investment Consultant System Sep.2016 – Oct.2016

- Constructed a financial product database from online investment and financial management platform.
- Developed a financial Investment consultant system supporting natural language input by various string matching methods.

Demo URL: http://kw.fudan.edu.cn/ddemos/licaichanpin/

Film and Television Knowledge Graph Feb.2017 – Apr.2017

- Crawled data from IMDb and Douban (Chinese mainly) to construct film and TV knowledge graph.
- Cooperated with Fanink Inc. Beijing to give suggestions to Shanghai International Film Festival as reference.

Innovation Project: Dynamic Gesture Recognition | Team Member Jul.2016 – Present

Advisor: Xiao-Dong Gu, Prof. at School of Information Science and Technology, Fudan University

- Investigated real-time gesture recognition in monocular main view.
- Solution 1: Used HMM as classifier with specific features like barycenter of your hand, positions of five fingers, etc. Solution 2: Used LSTM with CNN as classifier.

SOCIAL EXPERIENCE

Market Research Intern | Inchcape Plc. China Jul.2016 – Aug.2016

- Crawled online wheel hub dealers' information to assist market research nationwide.
- Saved 40% funds of that summer market research projects and completed 20 days ahead of schedule.

Volunteer in Yunnan Province Jul.2015 – Aug.2015

- Taught primary students and paid home visits to 20+ families.
- Used standard of tourism grading to quantize local tourism source and gave suggestions.

Volunteer in Hubei Province Dec.2014 – Jan.2015

- Taught high school students and hosted a mobilization meeting.

SKILLS AND OTHERS

Language: Chinese (native), English
Programming Languages: Python, C/C++, Assembly, JAVA, VB, HTML/CSS/JS, Verilog
Tools: Keras, OpenCV, MATLAB, LaTex, MySQL, MongoDB, Git, SPSS