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Shiyue Zhang

Master Student, Beijing University of Posts and Telecommunications

Education

Beijing University of Posts and Telecommunications, Beijing, China
Master of Engineering, Information and Communication Engineering, *Sep' 15 - Mar' 18*

Beijing University of Posts and Telecommunications, Beijing, China
Bachelor of Engineering, Communication Engineering, *Sep' 11 - July' 15*

Research Interests

Natural Language Processing: Machine Translation, Multilingual.
Machine Learning: Graphical model, Structured learning.

Publications

Yang Feng, **Shiyue Zhang**, Andi Zhang, Dong Wang, Andrew Abel. "Memory-augmented Neural Machine Translation". EMNLP 2017.
Shiyue Zhang, Gulnigar Mahmut, Dong Wang, Askar Hamdulla. "Memory-augmented Chinese-Uyghur Neural Machine Translation". APSIPA ASC 2017.
Aodong Li, **Shiyue Zhang**, Dong Wang, Thomas Fang Zheng. "Enhanced Neural Machine Translation by Learning from Draft". APSIPA ASC 2017.
Shiyue Zhang, Zheng Hu, Chunhong Zhang. "History-based Article Quality Assessment on Wikipedia". BigComp 2018.
Shiyue Zhang, Pengtao Xie, Dong Wang, Eric P. Xing. "Medical Diagnosis From Laboratory Tests by Combining Generative and Discriminative Learning". arXiv.

Awards & Achievements

National Scholarship, 2014 (Rank, 1/595)
National Scholarship, 2013 (Rank, 6/595)
Excellent Graduate Award, 2015.
First Class Scholarship, 2011, 2015, 2016, 2017.
Excellent Undergraduate Awards, 2012, 2013, 2014.

Research Experience

Summer Intern, SAILING LAB, Carnegie Mellon University
Supervisor : Prof. Eric P. Xing, Dr. Pengtao Xie *July '17 - Sep '18*

- Combined generative and discriminative learning to conduct **medical diagnosis** based on laboratory test data.
- Leveraged **deep generative models, Variational Recurrent Neural Network (VRNN)**, to model patients' temporal, multivariate, incomplete, irregular laboratory test records. Used a discriminative network to predict diseases. Proposed an end-to-end training method by combining learning targets from both generative and discriminative learning. Implemented the model on **Tensorflow**.
- The model performed significantly better than baselines and showed better ability in representation learning and missing value imputation.
- A paper named "Medical Diagnosis From Laboratory Tests by Combining Generative and Discriminative Learning" was put on arXiv, and is awaiting further publication.

Research Assistant, CSLT, Tsinghua University
Supervisor : Prof. Dong Wang, Dr. Yang Feng *Sep '16 - June '17*

- Researched on **Parsing**.

- Added a memory component to **Recurrent Neural Network Grammars (RNNG)**. Implemented the model on **Dynet**. The model did not work as expected, so this work was halted by Jan'17. Wrote a "RNNG Code User Guide (in Chinese)".

- Researched on **Neural Machine Translation (NMT)**.

- Reproduced the attention-based seq2seq model on Tensorflow (Github: ViVi_NMT)

- Added a memory component, which memorizes word mappings learned from Statistical Machine Translation (SMT), to NMT, called **Memory-augmented NMT (M-NMT)**.

- Experimented M-NMT on **Chinese-English** and **Chinese-Uyghur** translations. Demonstrated that M-NMT improved the performance of NMT, and this improvement was more significant on small datasets. And, presented M-NMT could recall more rare words and could be used to deal with unknown words.

- A paper named "Memory-augmented Neural Machine Translation" was published on EMNLP'17. Another paper named "Memory-augmented Chinese-Uyghur Neural Machine Translation" was accepted by APSIPA ASC 2017.

- Proposed a **two-step NMT** which took the first-step translation as additional inputs in the second-step translation, so decoder could take backward context into consideration.

- A paper named "Enhanced Neural Machine Translation by Learning from Draft" was accepted by APSIPA ASC 2017.

Master Student, Beijing University of Posts and Telecommunications
Supervisors : Prof. Zheng Hu *Sep '15 - Present*

- Researched on **Wikipedia Article Quality Assessment**.

- Combined feature engineering and deep learning. Used LSTM to model the long edit history of an article and each revision of the edit history was represented by manually defined features. Implemented the model on **Theano**. Proved the model to be both effective and efficient.

- A paper named "History-based Article Quality Assessment on Wikipedia" was accepted by Bigcomp'18.

- Developed Wikipedia Article Quality Assessment Tools, supporting both a web service and a Chrome extension. (Github: Wikipedia Article Quality Assessment Tool)

Work Experience

Software Development Intern, Youdian Startup, YOKA.com
Supervisor : Liang Zhu *Apr '15 - Aug '15*

- Developed web crawlers to crawl articles, comments, hot topics from Weibo.

- Participated in the design of a **personalized news recommendation system**.

- Independently designed and developed an LDA-based recommendation component. Modeled user interest and news content using classic **topic model LDA**. This component gained 15% click-through-rate which **ranked NO.1** among other components.

Software Development Intern, Institute of Software Chinese Academy of Sciences
Supervisor : Dr. Shuzi Niu *Nov '14 - Jan '15*

- Investigated factors that influence **car fuel consumption and customer satisfaction**.

- Developed web crawlers to crawl basic information of cars, like brand, weight, engine power, etc.

- Analyzed the relationship between these factors and car fuel consumption by ANOVA. Build decision trees to determine the relationship between car fuel consumption and customer satisfaction.

- Reported the results to TOYOTA(China) company.

Skills

Computer: Python, C++, Bash, LaTeX, HTML
Software & Tools: Tensorflow, Dynet, Theano, LaTeX, Git, Linux, SQL, MongoDB, Spark.
Languages: Chinese (Native); English (TOEFL: 107 (R28, L29, S23, W27), GRE: 324+4.0 (V155, Q169, AW4.0))