JIACHENG LI

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EDUCATION

University of California, San Diego (UCSD) *09/2018— 06/2020 (expected)*
Master of Computer Science
GPA: 3.6/4.0

Nanjing University of Posts and Telecommunications (NUPT) *09/2014— 06/2018*
Bachelor of Information Security
GPA: 4.1/5.0
Courses: C/C++, Operating System, Principle of Compiler, Computer Network, Data Structure and Algorithm, etc.

INTERNSHIPS

C++ Software Development Intern *03/2018-07/2018*
Unary LLC. Website: http://www.unary.com.cn/
- Developed a transcoding tool in MFC using MVC designing mode.
- Handled concurrent access with multithread programming, implemented with CWinThread object.
- Used factory pattern for the software expandability.
- Designed and Coded the logging file management system implemented with C++ Boost library, TinyXml2, file operation implemented by C++.
- Used SQL to have access to database in the company.

Summer Research Intern at UCSD lab directed by Julian McAuley *06/2019-09/2019*
https://cseweb.ucsd.edu/~jmcauley/
Project: Time Interval Aware Self-Attention for Sequential Recommendation.

Graduate Student Researcher-Machine Learning, NLP *09/2019-Now*
Center for Microbiome Innovation. https://cmi.ucsd.edu/
- Develop novel NLP methods that can more effectively extraction associations between diseases and microbes mentioned in published articles.
- These methods can help enable the automated knowledge base creation and help to accelerate the pace of human microbiome research in the future.
- Responsible for development of relation extraction algorithm using few annotated data for training.

Publications

Jiacheng Li, Yujie Wang and Julian McAuley. 2020. Time Interval Aware Self-Attention for Sequential Recommendation. Web Search and Data Mining (**WSDM**).

Jianmo Ni, Jiacheng Li and Julian McAuley. 2019. Justifying recommendations using distantly-labeled reviews and fined-grained aspects. Empirical Methods in Natural Language Processing (**EMNLP**).

Jiacheng Li, Zhu Yihong Chen Yunfang, Zhang Wei. 2017. How to Improve the Signal Processing of WiFi Sensing. **ICCSN.** IEEE 2017.

Zhenjie Xu, Jiacheng Li, Yunfang Chen. 2017. Survey of trach association of radar and AIS**. ICIVC.** IEEE 2017.

PROJECTS

Justifying Recommendations using Distantly-Labeled Reviews and Fined-Grained Aspects, UCSD
Research Project
- Defined each segment as an Elementary Discourse Unit (EDU) which corresponds to a sequence of clauses.
- Annotate data and trained GRU-based (Gated Recurrent Unit) and BERT-based text classifier to identify justifications from user reviews and compared the results.

- Reference-based Seq2Seq Model: A natural language generation model based on the seq2seq model. We apply two-layer bidirectional GRU as the encoder and decoder. Use attention mechanism to incorporate aspect information to improve controlment of generation.
- Aspect Conditional Masked Language Model: The masked language model in the pretrained BERT model as our sequence decoder and add attention over the aspect encoder's output.
- We implement this project with **Pytorch.**

Time Interval Aware Self-Attention for Sequential Recommendation, UCSD
Research Project
- Designed a novel time interval aware self-attention (TiSA) mechanism to learn the weight of different items, absolute position and time intervals to predict the following items.
- We proposed to view user's interactions history as a sequence with different time intervals, and model different time intervals as relations between any two interactions.
- We implement this project with **Tensorflow**.

Joint Force in Managing Zambezi River
2017 Mathematical Contest in Modeling (MCM)
Outstanding Winner, SIAM Award; (13/8843)
- Design a new dam system to replace the old Kariba Dam on the Zambezi River.
- Investigate different facts on water flow and consider various situations under different weathers and terrains.
- Formulated the water flow balance equations.
- Used dynamic programming to get the best positions of dams implemented with Lingo.
- Used the particle swarm optimization in **MATLAB** optimization tools to get the most optimized volume of water should be scheduled.

Gene name tagging with Hidden Markov Model, UCSD
Course Project
- Build a Hidden Markov Model (HMM) to tag gene names in biological text.
- Improve the baseline with trigram HMM.
- Implement this project with **Python.**

Machine Translation with IBM Model 1 and IBM Model 2, UCSD
Course Project
- Applied IBM Model 1 and EM algorithm to predict English/Spanish word alignments.
- Improve IBM Model 1 to IBM Model 2.
- Design our own growing alignment.
- Implement this project with **Python.**

Keypad Password Input Monitoring Based on Wi-Fi System, NUPT
Research Project
- Used laptop with modified wireless network driver to receive signal, coded C++ program to obtain channel state information.
- Used low-pass filter implemented with MATLAB to denoise.
- Implemented discrete wavelet transform by MATLAB to compress the data.
- Implemented support vector machine (SVM) for pattern recognition to obtain key classification and identified keys.

SKILLs

Python, C/C++, Tensorflow, PyTorch, SQL, MATLAB, Keras