Haoyu Yang

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EDUCATION

Computer Science and Technology	*Master*	Sep 2016 - Today	**Dalian University of Technology**
Chemical Engineering	*Bachelor*	Sep 2012 - Jun 2016	**Dalian University of Technology**

PUBLICATIONS

Sun L, Jin B, **Yang H**, Tong J, Liu C, & Xiong H. (2018) **Unsupervised EEG Feature Extraction Based on Echo State Network.** *Information Science* *Paper Link*

This paper use an Echo State Network (ESN) to encode EEG signals to EEG features. This paper shows that the well-known autoregression-based EEG feature extraction can be seen as a simplified variation of our FE-ESN method.

Jin B, **Yang H**, Sun L, Liu C, Qu Y, & Tong J. (2018) **A Treatment Engine by Predicting Next-Period Prescriptions.** *ACM SIGKDD International Conference on Knowledge Discovery & Data Mining.(KDD Oral)* *Paper Link*

This paper develops a treatment engine, which learns from historical EMR data, and once learned, can provide a patient with next-period prescriptions based on disease conditions, laboratory results, and treatment records of the patient. The algorithm in this paper is implemented in Tensorflow.

Jin B, **Yang H**, Xiao C, Zhang P, Wei X, & Wang F. (2017) **Multitask Dyadic Prediction and Its Application in Prediction of Adverse Drug-Drug Interaction.** *In AAAI Conference on Artificial Intelligence.(AAAI Oral)* *Paper Link*

This paper formulate Drug-Drug Interaction prediction problem using tensor decomposition method. Compared with the traditional approaches which can only impute the missing entries in the matrix, our approach can directly regress those dyadic relationships.

Huang D, Guo L, **Yang H**, Wei X, & Jin B. (2017) **Chemical Medicine Classification Through Chemical Properties Analysis.** *IEEE Access, 5, 1618-1623.* *Paper Link*

This paper compute the similarity for each drugs-pair based on their structure information, and try to classify new drugs according to the similarity.

Guo L, Jin B, Yao C, **Yang H**, Huang D, & Wang F. (2016) **Which Doctor to Trust: A Recommender System for Identifying the Right Doctors.** *Journal of Medical Internet Research, 18(7).* *Paper Link*

In this paper, we identify the doctors who have the potential to be KOLs in the field of medical and health informatics, and deployed a recommender system.

INTERNSHIP

Baidu Research Intern *Talent Intelligence Center (TIC)* Mar 2018 - July 2018

Research on intelligence of human resources. The mainly work is to predict the work tension of employees using a specially designed **topic model** based on their promotion documents, department information and the record of working time. Analyze the correlation between working tension and some factors (salary, promotion/leave rate).

PROJECTS

The Construction of Precision Medicine Knowledge Base. *The People's Republic of China Ministry of Science.*

Developed a **web crawler** to collect data from different sources, and integrated these information into a mega-thesaurus using **MySQL**. The database we built includes 12 tables and can provide at most 600 dimensional feature for 36940 drugs

Sales Forecasting. *some computer and pharmaceutical companies.*

- Developed a algorithm for the prediction task, with special care for the discrete sales data.
- Make the data smoother by standardized normal distribution processing. Using **ARIMA**, **Prophet** and **LSTM** as base learner.

SKILLS

- **Deep Learning**: Proficient in **RNN** and it's variations. Familiar with the main approach to design **Graph Convolutional Network**. Familiar with **CNN**. Can build RNN or CNN structure and it's back propagation in the deep learning framework.
- **Convex Optimization**: Familiar with **Gradient Descent** and its improvement or acceleration strategy. Also Familiar with **Proximal Gradient Descent** and its its improvement or acceleration strategy.
- **Python**:
  - **Crawler**: Can use BeautifulSoup and Regular Expression to get the information
  - **Data Analysis**: Data Analysis using **Pandas** and **Numpy** with high efficiency.
  - **Framework**: Proficient in **TensorFlow**. Coding with TensorFlow Core (the lowest level API). Familiar with **Pytorch**, **Theano** and some high level framework like **Keras** and **Lasagne**.
- **Others**: Familiar with Matlab and C++. Familiar with **MongoDB** and **MySQL**. Proficient in data visualization, familiar with Gephi, Echarts, Matlab's plot library, Python's Matplotlib.

EXPERIENCE

Oral Presentation in KDD 2018 *London, U.K. Video Link: Download Full Paper -> Video* Aug, 2018

Short Term Academic Visit *Nanyang Technological University, Singapore* Jan 2016

Teaching Assistant *Multimedia Technology* 2016 Fall, 2017 Fall

Teaching Assistant *Deep Learning* 2018 Fall

Translator *Coursera's Global Translator Community* 2017, 2018

EXTRA COURSES ON COURSERA

Discrete Optimization *The University of Melbourne*

Probabilistic Graphical Models *Stanford University*

Deep Learning Specialization *deeplearning.ai*