Jiayu Zhou

Deep Learning/Machine Learning Engineer TEL: 213-422-4113 Email: zhoujiay@usc.edu

Internships Experiences

Linkedsee AIops, Beijing & China CITIC Bank, Beijing (Cooperation) **Mar 2021 – July 2021**
Machine Learning and Algorithm Intern

Bank Jump Server Behavior Analysis
Independent algorithm developer including data processing

- Aimed to analyze the rationality of bank data system user behavior and the level of danger.
- Developed an algorithm based on deep learning and Markov Chain Analysis.
- Improved the Recall from 0.15% to 73% (based on the real operating record).
- based on unsupervised learning
  Deep learning module: one CNN layer followed by 2(or 1) Bi-LSTM layers with some other layers

Internalization of External Policy
Independent algorithm developer including data processing

- Aimed to ensure that the regulations in the bank cover the policy from higher department.
- Developed an algorithm based on deep learning, text-rank and page-rank.

Research Experiences

Rapid Diagnosis of Alzheimer's and MCI by MRI **Nov 2021 – Feb 2022**

- Using dataset on LONI USC
- Aim to diagnose whether a patient has or tends to have Alzheimer's or MCI
- Build several VGG networks and Res-net based on Convolutional Neural Network
- Get a 80% accuracy when diagnose 5 categories of patient(NC, EMCI, MCI, LMCI, AD)
- Still going on to predict the tendency of the disease on patients

Natural Language Processing with Disaster Tweets **Oct 2021 – Dec 2021**

- Aim to identify whether a tweets a real report of a disaster or rumor
- Using Textrank and regulations to extract keywords
- A multiple model with 2 inputs(the whole tweets and keywords of it) were built
- 1-dimensional CNN, Bi-LSTM and merge skills were used
- Get a 83% accuracy and 0.81 F1 which is above other competitors

Intelligent Prediction Method of Coating Aging Trend-Undergraduate Thesis **Nov 2020 – July 2021**

- Aimed to use a small amount of aging data for the first 10 days of the material in seawater to predict the aging data for the next 300 days through building a neural network.
- Tried many models to get a good prediction without overfitting or weight explosion.
- 2 basis model has been used:
  1. Predict the next data based on the last 10 data: fully connected layers.
  2. Predict the data of next 300 days based on the first 10 data: Bi-RNN and Bi-LSTM.

Prediction of the Binding Degree of Triptolide acting on pi-RNA Targets **Nov 2020 – July 2021**
Responsible for Informatics Technique

- Aimed to predict the binding degree on pi-RNA without Bio-experiment based on the data of si-RNA.
- Build and train the deep learning model to match the si-RNA sequences and binding degree.
- Predict the binding degree by segments and fuse the data of segments by statistic mathematics methods.
- Succeed to predict over 90,000 pi-RNA binding degree of Triptolide by data of only 1000 si-RNA sequences

The Rapid Identification of Bacterial Drug Susceptibility based on Mass Spectrometry and Deep Learning
Team Leader **Feb 2020 - Nov 2020**

- Completed the digital conversion of Mass Spectrum based on the image pixel matrix
- Extracted the peak with CNN and input it into the DNN system, the accuracy of the test group of untrained strains increased to about 94%, and the accuracy for multiple strains and multiple drugs was about 70%
- Intend to combine CNN and DNN to directly predict drug sensitivity without peaking

Technical Skills

Python, Machine Learning, Deep Learning, Data Processing, C, C++, MATLAB, Verilog, GIT

Education Background

Viterbi school of Engineering, University of Southern California GPA:3.9/4.0
M.S. in Electrical Engineering (pursuing), Machine Learning and Data Science track **Aug 2021 - Jun 2023(expected)**
College of Information Science and Technology, Beijing University of Chemical Technology GPA:87.78/100
B.S. in Electronic Information Engineering **Sept 2017- June 2021**

Hobbies

- Tennis, Chinese Chess, Music, and the main debater of the debate team