Yiyang Feng

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EDUCATION

Xi'an Jiaotong University   Aug 2018-Jul 2022

B.S. in Automation Science & Technology; Overall GPA: 4.00/4.30; Major GPA: 4.11/4.30 (top 5% among 197 students)

Relevant Coursework: Linear Algebra (97) / Calculus (96) / Probability Theory and Stochastic Processes (95) / Discrete Math (96) / Practice of Programming in C (100) / Data Structures and Algorithms (94) / Introduction to Computer Organization and Embedded Systems (94) / Computer Network Theory and Its Applications (92) / Deep Learning (Coursera Certificates)

SCHOLARSHIPS AND AWARDS

Ranked 7/3023 in the 2nd IKCEST International Big Data Competition   Sep 2020

First Prize Scholarship, Xi'an Jiaotong University (top 3% among 1200 students)   Sep 2019

PATENT

An optimization method for joint entity and relationship extraction on social media texts   Apr 2021

RESEARCH EXPERIENCE

Explainable Graph Neural Networks for NLP   May 2021-Present

Research Assistant, PSU NLP Lab

Advisor: Rui Zhang, Assistant Professor, Computer Science and Engineering Department, Pennsylvania State University

➢ Explored explainable Graph Neural Network (GNN) methods on two NLP tasks: DialogueGCN and TextGCN

➢ Applied GraphMask and GNNExplainer to interpret edge importance on predictions from selected trained GNN models

➢ Masked 50%+ of messages, most from the bottom layer, with an accuracy drop of less than 4% for both tasks

➢ Investigated the problem from the experimental result and the limitation of reparameterization tricks from GraphMask

➢ Proposed a new explainable GNN method based on policy gradient and GraphMask to optimize the explainable framework

Joint Entity and Relationship Extraction from Social Media Texts   Dec 2020-Apr 2021

Research Assistant, MOE Key Lab For Intelligent Networks and Network Security

Advisor: Xiaoming Liu, Associate Professor, Department of Automation Science and Technology, Xi'an Jiaotong University

➢ Analyzed the deficit of applying SOTA models to social media text with confounding correlation on entities and positions

➢ Annotated Twitter texts with three entity types and nine relation types to compensate for problems encountered

➢ Introduced a counterfactual generation model to optimize current joint entity and relationship extraction models

➢ Improved the performance of the information extraction models by 2% on the manually annotated social media text

➢ Filed a patent with our counterfactual generation model; won third prize in the XJTU TENGFEI Cup competition

Pseudocode Programming Based on Dialogue System   Jun 2020-May 2021

Research Assistant, Intelligent Human-Computer Interaction Lab

Advisor: Zhongmin Cai, Professor, Department of Automation Science and Technology, Xi'an Jiaotong University

➢ Devised a pseudocode rule base to define the syntax of atomic operations in pseudocodes

➢ Utilized a traditional lexical and syntax analyzer in pseudocode translation based on the rule base with Lex and Yacc

➢ Designed a dialogue system that throws exceptions in natural languages to help users translate pseudocode into C code

➢ Combined NLP techniques LSTM with the dialogue system in pseudocode translation to interpret natural language instructions

SELECTED PROJECT EXPERIENCE

Forecasting the Future Incidence of Highly Pathogenic Contagious Diseases   Jun 2020-Sep 2020

Team Member, 2nd IKCEST "The Belt and Road" International Big Data Competition

➢ Modeled the spread of a contagious disease to predict the number of newly infected people per day

➢ Constructed new features of population density, transfer, and migration using the information in the regions of several cities

➢ Ensembled three LSTMs of different step lengths; introduced pandemic prevention and control factors

➢ Improved RMSLE score from 3.03 to 1.07 over official baselines; placed seventh in the contest

SKILLS

➢ **Programming:** Knowledge in C, C++, Python, and MATLAB