Bowen Jin

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EDUCATION

TSINGHUA UNIVERSITY **Beijing, China**
Major: Electronics Engineering. B. Eng. GPA: 3.9 / 4.0 (7 /278) Sep 2017 - Aug 2021
Core Courses: Calculus, Linear Algebra, Probability and Stochastic Processes, Discrete Mathematics, Database, Data and Algorithm, Computer Program Design, Operating System, Modern Computer Architecture, Fundamental of Digital Logic and Processor, Digital Image Processing

TSINGHUA UNIVERSITY **Beijing, China**
Minor: Statistics Sep 2018 - Aug 2020
Core Courses: Multivariate Statistical Analysis, Statistical Methods in Data Mining, Statistical Computing, Statistical Inference, Linear Regression Analysis, Applied Time Series Analysis

PUBLICATIONS

- **Bowen Jin***, C. Gao, X. He, Y. Li, D. Jin. *Multi-behavior Recommendation with Graph Convolution Networks*. **Accepted and published on SIGIR 2020 Conference**
- C.Gao, J. Zhang, **Bowen Jin**, N. Li, Y. Li, Z. Tu, G.Pan, D. Jin. *Coupling User Interest and Mobility Pattern: Geography-aware Location Visitation Prediction with Graph Neural Networks.* **Preprint**
- Y. Zheng, C. Gao, W. Ni, **Bowen Jin**, Y. Li, D. Jin. *Diversified Recommendation Through Similarity-Guided Graph Neural Networks.* **Preprint**

HONORS AND AWRDS

National Scholarship (three times) (top 2%) 2018/2019/2020
Scholarship of Academic Excellence 2018
Advanced Individual of Cultural and Sports Activities (twice) 2018/2019
Honorable Mention in Mathematical Contest in Modeling (top 15.35%) 2019

RESEARCH EXPERIENCE

News & Ads Recommendation / Efficient Graph Sampling GNN for Recommendation
Research Intern in MSRA *Sep2020 - Present*
Advisor: Dr. Zheng Liu & Dr. Xing Xie **Los Angeles, USA**

- Apply Bert-based Bi-encoder, Cross-encoder and Poly-encoder for news & ads recommendation and retrieval
- Design graph sampling method for GNN to improve recommendation efficiency

GRAPH NEURAL NETWORK AND GRAPH POOLING
Research Assistant online in the Department of Computer Science, UCLA *Jul 2020 - Sep 2020*
Advisor: Prof. Yizhou Sun **Los Angeles, USA**

- Designed graph pooling methods with spectral clustering
- Proposed a kernel-based graph pooling method which combines kernel K-means to prevent overfitting
- Conducted graph classification and subgraph detection task with kernel-based graph pooling method

GRAPH NEURAL NETWORK AND RECOMMENDER SYSTEM

Research Assistant in the Future Communications and Internet Lab, Tsinghua University *Sep 2018 - Present*
Advisor: Prof. Yong Li **Beijing, China**

- Implement some baselines models (MF, NeuMF etc.) in recommender system
- Proposed and implemented a multi-behavior recommender system and the accuracy of recommendation recall was improved by 6.51% and finally reached 25.02% on ten-thousand level real world datasets
- Designed models to utilize social information for POI recommendation and the accuracy of recommendation recall was improved by 6.85% and finally reached 37.32% on ten-thousand level real world datasets

STATISTICAL NETWORK ANALYSIS

Research Assistant in the Department of Statistics, University of Michigan—Ann Arbor *Jul 2019—Sep 2019*
Advisor: Prof. Ji Zhu **Ann Arbor, USA**

- Investigated related works (deepwalk, node2vec, line) in graph embedding field and wrote 1000+ line code for graph embedding models to do semi-supervised tasks
- Proposed and implemented graph embedding models and got link prediction accuracy more than 90% on Facebook social graph dataset

PROJECT EXPERIENCE

Media and Cognition Project

- Implemented a traffic sign classification model based on CNN with PyTorch which got 96.5% classification accuracy on thousand level traffic sign classification dataset
- Implemented faster R-CNN model with detection2 to do traffic sign detection and recognition task and got 60% detection recall on thousand level dataset

Computer Network Project

- Implemented web crawlers with urllib and BeaytifulSoup
- Captured (POI, relation, POI) triple from Baidu Baike using recursive list and constructed POI knowledge graph
- Implemented and trained KG embedding with TransE and Dismult model

Probability and Stochastic Processes Project

- Implemented gaussian regression, used it to predict NASDAQ stock price and got prediction error less than 0.4 for 5 days' prediction
- Proposed several MLP-based gaussian regression kernels and got 0.8% accuracy improvement for 5 days' prediction

Digital Image Processing Project

- Developed several image processing tools including histogram equalization, histogram specification, edge detection, frequency domain enhancement, pseudo color enhancement, fuzzy processing and Huffman coding with MATLAB
- Implemented a license plate detection algorithm based on edge detection and color recognition

Signal and System Project

- Analyzed violin sonata by using joint time-frequency analysis, short-time Fourier transformation and windowing operation in time domain
- Composited music with Fourier Series
- Compressed image with JPEG coding and achieved face detection with color histogram.

Fundamental of Digital Logic and Processor Project

- Implemented a single cycle MIPS processor with Verilog
- Developed a pipeline MIPS processor with Verilog which could deal with exception and break off
- Performed the bubble sorting algorithm with assembly language

LEADERSHIP EXEPRIENCE

Vice-Captain of Chinese Orchestra at Tsinghua University

- Won the first prize in Beijing Student Chinese Orchestra Competition
- Led a team of 70+ players and organized six concerts at Tsinghua University

OTHERS

Skills: Python/C/C++/MATLAB/R/Html/Linux/Markdown/Shell/SQL
Test Scores: TOEFL:104; GRE 326