Bowen Jin

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EDUCATION

TSINGHUA UNIVERSITY **Beijing, China**

Major: Electronic Information Science and Technology B Eng; GPA: 3.90 / 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; GPA: 3.5 / 4.0 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 MCM (top 15.35%) 2019

RESEARCH EXPERIENCE

Ads Recommendation / Graph Sampling-based GNN for Efficient Recommendation

Research Intern in MSRA *Sep 2020 - Present*

Advisor: Dr. Zheng Liu and Dr. Xing Xie **Beijing, China**

- Apply bert-based bi-encoder, cross-encoder and poly-encoder for ads recommendation and retrieval
- Design graph sampling-based GNN method 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 method to further extend graph neural network in a hierarchical pattern
- Proposed a kernel-based graph pooling method which combines kernel k-means to prevent overfitting
- Did graph classification and subgraph detection task with kernel-based pooling method and got improvement

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…) in recommender system
- Proposed and implemented a multi-behavior recommender system using graph convolutional network and got 25.02% and 6.51% performance improvement on two real world datasets
- Designed models to utilize social information for POI recommendation and got 6.85% to 37.32% improvement on two 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 in graph embedding field and wrote code for graph embedding models to do semi-supervised tasks
- Proposed and implemented graph embedding especially graph neural network model to do link prediction on social graph by using pyTorch

PROJECT EXPERIENCE

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 did face detection with color histogram method

Fundamental of Digital Logic and Processor Project

- Implemented a single cycle MIPS processor with Verilog
- Designed and Implemented a pipeline MIPS processor with Verilog which can deal with exception and break off
- Implemented bubble sorting algorithm with assembly language

Probability and Stochastic Processes Project

- Predicted NASDAQ stock price with gaussian regression
- Proposed several MLP-based gaussian regression kernels

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
- Trained KG embedding with TransE and Dismult and did entity-relation prediction

Digital Image Processing Project

- Implemented several image processing tools including histogram equalization, histogram specification, edge detection, frequency domain enhancement, pseudo color enhancement, fuzzy processing and Huffman coding with Matlab

- Designed and implemented a license plate detection algorithm based on edge detection and color recognition

Media and Cognition Project

- Implemented a traffic sign classification model based on CNN with pyTorch
- Implemented faster R-CNN model with detection2 to do traffic sign detection and recognition task

LEADERSHIP EXEPRIENCE

Vice Captain of Chinese Orchestra in Tsinghua

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

OTHERS

Skills: Python/C/C++/Matlab/R/Html/Linux/Markdown/Shell/SQL
Test Scores: TOEFL:103; GRE 326