Quan Li

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Research Interests

- **Machine learning:** graph neural networks, nature language processing, representation learning, machine learning vulnerability and robustness, large language model

Education

2020-Present **Pennsylvania State University**, State College, PA
College of Information Science and Technology
Ph.D. candidate

2018-2020 **The Ohio State University**, Columbus, OH
Master of Science (M.S.) in Electrical and Computer Engineering
GPA – 3.97

2015-2017 **Clemson University**, Clemson, SC
Bachelor of Science (B.S.) in Computer Engineering
GPA – 3.58

2013-2015 **Beihang University**, Beijing, China
Computer Engineering (Transferred to Clemson University)
GPA – 3.68

Publications

SIGIR 2022 **Q. Li**, X. Li, L. Chen, and D. Wu. "Distilling Knowledge on Text Graph for Social Media Attribute Inference".

PAKDD 2023 **Q. Li**, L. Chen, Y. Cai, and D. Wu. "Hierarchical Graph Neural Network for Patient Treatment Preference Prediction with External Knowledge".

WWW 2023 **Q. Li**, L. Chen, X. Li, and D. Wu. "Knowledge Distillation on Cross-Modal Adversarial Reprogramming for Data-Limited Attribute Inference".

ICDM 2023 **Q. Li**, L. Chen, S. Jing, and D. Wu. "Pseudo-Labeling with Graph Active Learning for Few-shot Node Classification".

DASFAA 2024 S. Jing, L. Chen, **Q. Li**, and D. Wu. "H^2GNN: Graph Neural Networks with Homophilic and Heterophilic Feature Aggregations"

IJCNN 2024 S. Jing, L. Chen, **Q. Li**, and D. Wu. "DOS-GNN: Dual-Feature Aggregations with Over-Sampling for Class-Imbalanced Fraud Detection On Graphs"

Recent Research Experiences

Nov 2022 - Present **Few-shot learning with GNNs**, *PSU*.
- Designing and developing state-of-the-art methods with limited data by integrating various techniques
  - Leveraging knowledge distillation to mine hidden information from unlabeled data
  - Using adversarial reprogramming to benefit from other models
  - Applying Large Language Models to enhance GNNs

Nov 2021 - Jan 2023 **Social Media Attribute Inference**, *PSU*.
- Explored text graph construction and refinement
- Investigated few-shot learning
- Designed and developed state-of-the-art methods for attribute inferences of few labels
  - Leveraged knowledge distillation to take advantage of unlabeled data
  - Worked on adversarial reprogramming with ViT to cope with training data scarcity

Oct 2020 - Aug 2021 **Pipelining Machine Learning Models in SGX Environment**, *PSU*.
- Investigated trust computing within the limited space
- Explored pipelining partial machine learning model in the trust environment
- Designed and developed the model splitting algorithm
  - Applied machine learning to achieve the auto-splitting algorithm based on the computing operations

Sep 2020 - Nov 2020 **Semantic-aware Binary Code Search**, *PSU*.
- Proposed the sampling-based approach for the semantic-based comparison method to improve the performance of the binary code search.
- Developed the binary search engine
  - Collected the binary files and constructed the binary database for the engine
  - Leveraged the database to analyze the semantic-based comparison methods

Work Experiences

May 2024 - Aug 2024 **Research Intern**, *GOOGLE*.
- AI/ML for security

May 2022 - Aug 2022 **Machine learning Intern**, *IQVIA*.
- Leveraged external data (e.g. Doctor data, network data) besides patient data to predict the patient preference
  - Proposed a new hierarchical GNN architecture to leverage different types of data
  - Leveraged community detection to deal with the data imbalance issues

May 2019 - July 2019 **Big Data Intern**, *Zhengzhou Light Metal Research Institute*, China.
- Utilized the BigData framework to build the data analysis system
  - Applied Hadoop, Spark, and other techniques to design the architecture of the system
  - Wrote a project proposal

Other Experiences

Reviewer IEEE SMC'23; IJCAI'24 workshop AI4Research

External Reviewer ECML-PKDD'24 & '23 & '22; SIGIR'24; IJCAI'24; TKDD; ICDM'22; BigData'22

Teaching Assistant PSU: SRA365:Statistical Analysis for Information Sciences; IST240:Introduction to Computer Languages; CYBER366:Malware Analytics

Teaching Aid OSU: ECE6001:Probability Theory

Team Leader Team leader of the ECE new graduate students' orientation, OSU 2019

Honors

Spring 2017 Clemson Dean's List

Spring 2016 Clemson President's List

Skills

Python, C, JAVA, MATLAB, Assembly Language, Android Development, Data Mining, Machine Learning (PyTorch, Tensorflow, etc)