

# Yiyue Qian

<https://yiyueqian.github.io/>

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## EXPERIENCE

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- **Amazon** Seattle, USA  
*Data Scientist (Intern)* May. 2022 - Aug. 2022
  - **Ring of Abuser Detection:** Developed an universal multi-modal GNN framework called **U-ROAD** to detect ring of abusers (e.g., seller-buyer collusion) on *Amazon* over the heterogeneous graph built on seller, buyer, and product along with multi-modal features (i.e., text and image). (82% of bad actors including bad sellers and bad buyers can be correctly detected in multiple real-world marketplaces.)
- **University of Notre Dame** South Bend, USA  
*Research Assistant (Full-time)* Jan. 2022 - present
  - **Drug Trafficking Detection:** To detect drug traffickers on *social media*, developed a novel framework MetaHG by integrating graph representation learning and meta-learning over the built heterogeneous graph which incorporates multi-modal data and relational structured information among nodes in graph. (93% of drug traffickers in our dataset can be detected.)  
  
To study drug trafficking among different *darknet markets*, developed an adversarial framework dStyle-GAN that combines writing and photography styles of drug posts, graph embedding learning, and adversarial learning to identify the same drugs posted among different darknet markets. (89.3% of posted drug pairs among multiple darknet markets in our dataset can be identified correctly.)
  - **Malicious Repository Detection:** Built a novel model Meta-AHIN integrating GCN, masking-based self-supervised learning, and task-aware meta-learning to detect COVID-19 themed malicious repositories over the heterogeneous information network using *GitHub* data. (87.3% of malicious repositories in our dataset can be successfully detected.)
- **Case Western Reserve University** Cleveland, USA  
*Research Assistant (Full-time)* Sept. 2019 - Dec. 2021
  - **$\alpha$ -Satellite Website for Assessing Risk during COVID-19:** Developed a website called  $\alpha$ -Satellite with a dynamic map and an analysis board to provide a risk index at multiple levels (e.g., county-level) and information on public perception about the pandemic; Built a model to learn the area embedding based on the heterogeneous graph augmented by cGAN for calculating the risk index. (more than 50k visits <https://covid-19.yes-lab.org>)
- **Ping An Technology Co., Ltd.** Shenzhen, China  
*Algorithm Engineer (Full-time)* Jan. 2018 - Aug. 2019
  - **Model Building:** Built NLP-related models to capture main topics, recognize named entities, analyze relationships among entities, and judge sentiment from unstructured text for Ping An FinTech AI analysis platform.
  - **Risk Event Monitoring:** Developed models on Linux to analyze the topic of global daily financial news such as Reuters News and monitor risk events at different levels (bankruptcy, violation of laws, affairs of executives, etc.). This launched function on the AI analysis platform is estimated to save more than \$1 million per year for Ping An Group.
- **China Vanke Co., Ltd.** Guangzhou, China  
*Data Analyst (Full-time)* Oct. 2017 - Dec. 2017
  - **Model Building:** Built machine learning models to analyze impact factors of commercial buildings and predict trends in real estate prices in big cities.
  - **Marketing Analysis:** Visualized results in Python for marketing insights and analyzed the trend on the model results.

## EDUCATION

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- **University of Notre Dame** South Bend, USA  
*PhD in Computer Science* Jan. 2022 - Jun. 2024  
**Research Interest:** Graph Representation Learning, Self-Supervised Learning, Contrastive Learning, Few-shot Learning, Adversarial Learning, Deep Learning, Data Mining, Social Network Mining, Fraud Detection
- **Case Western Reserve University** Cleveland, USA  
*PhD in Computer Science* Sept. 2019 - Dec. 2021  
**Research Interest:** Graph Representation Learning, Self-Supervised Learning, Machine Learning, Deep Learning, Data Mining
- **University College London** London, UK  
*Master in Statistics* Sept. 2016 - Sept. 2017  
**Courses:** Machine Learning, Statistical Models and Data Analysis, Applied Bayesian Methods, Statistics Inference, Decision and Risk  
**Thesis:** Classifying Three Propensities in Orange Telecom Company

## PUBLICATION

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- **Qian, Y.**, Zhang, C., Wen, Q., Zhang, Y., Ye, Y. and Zhang, C.. Co-Modality Graph Contrastive Learning for Imbalanced Node Classification, **NeurIPS**, 2022.
- **Qian, Y.**, Zhang, Wen, Q., Y., Ye, Y. and Zhang, C.. Rep2Vec: Repository Embedding via Heterogeneous Graph Adversarial Contrastive Learning, **KDD**, 2022.
- **Qian, Y.**, Zhang, Y., Ye, Y. and Zhang, C.. Malicious Repositories Detection with Adversarial Heterogeneous Graph Contrastive Learning, **CIKM**, 2022.
- **Qian, Y.**, Zhang, Y., Ye, Y. and Zhang, C.. Distilling Meta Knowledge on Heterogeneous Graph for Drug Trafficker Detection on Social Media, **NeurIPS**, 2021.
- **Qian, Y.**, Zhang, Y., Ye, Y. and Zhang, C.. Adapting Meta Knowledge with Heterogeneous Information Network for COVID-19 Themed Malicious Repository Detection, **IJCAI**, 2021.
- Zhang, Y., **Qian, Y.**, Ye, Y. and Zhang, C.. Adapting Distilled Knowledge for Few-shot Relation Reasoning over Knowledge Graphs, **SDM**, 2022.
- Zhang, Y., **Qian, Y.**, Fan, Y., Ye, Y., Li, X., Xiong, Q. and Shao, F.. dStyle-GAN: Generative Adversarial Network based on Writing and Photography Styles for Drug Identification in Darknet Markets, **ACSAC**, 2020.
- Wen, Q., Ouyang, Z., Zhang, J., **Qian, Y.**, Ye, Y., and Zhang, C.. Disentangled Dynamic Heterogeneous Graph Learning for Opioid Overdose Prediction. **KDD**, 2022.
- Ye, Y., Fan, Y., Hou, S., Zhang, Y., **Qian, Y.**, Sun, S., Peng, Q., Ju, M., Song, W. and Loparo, K.. Community Mitigation: A Data-driven System for COVID-19 Risk Assessment in a Hierarchical Manner. **CIKM**, 2020.

## SKILLS SUMMARY

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- **Languages and Platforms** Python (PyTorch, TensorFlow, Keras), R, C++, JavaScript, SQL, Linux, Colab
- **Soft Skills** Leadership, Team-Spirited, Problem Solving, Motivated, Critical Thinking, Creative Thinking
- **Languages** Mandarin, English

## AWARDS

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- NeurIPS Scholar Award, 2022
- CIKM Student Travel Award, 2022
- National Scholarship Award, 2014
- National Encouragement Scholarship Award, 2013

## SERVICES

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- **Program Committee Member** KDD, AAAI, ICDM, WWW
- **Reviewer** Journal of Neurocomputing, Transactions on Big Data, Transactions on Dependable and Secure Computing, Transactions on Dependable and Secure Computing, ACM Transactions on Privacy and Security
- **Teaching Assistant** Computer Security (CSE-40567, CSDS-344)