Yanru Qu

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Education

Shanghai Jiao Tong University — **Shanghai, China**

Sep. 2012 - Mar. 2019 (Expected)

- B.E. in Computer Science, IEEE Honored Class, GPA 86.87
- M.E. in Computer Science, GPA 3.83/4 (Major 3.93)
- Advisors: Prof. Weinan Zhang, Prof. Yong Yu, and Prof. Jun Wang (University College London)

University of Montreal — **Montreal, Canada**

June. 2018 - Nov. 2018

- Research Intern, Montreal Institute of Learning Algorithms
- Working on Graph Networks and Recommender Systems
- Advisor: Prof. Jian Tang

Research Interests

My research interests lie in the general area of machine learning and data mining, particularly in deep representation learning for categorical or mixture type data, as well as their applications in recommender systems, natural language processing, knowledge graph, and transfer learning.

Publications (Google Scholar Profile)

TGE-PS: Text-driven Graph Embedding with Pairs Sampling
- L Chen, **Y Qu**, Z Wang, L Qiu, W Zhang, K Chen, S Zhang, Y Yu.
- Submitted to *Proceedings of the 33rd AAAI Conference on Artificial Intelligence*. **AAAI 2019**.

Improving Deep Clustering via Embedding Selection and Ensemble Learning
- Jianhua Han, Liang Yin, **Yanru Qu**, Weinan Zhang, Yong Yu.
- Submitted to *Proceedings of the 33rd AAAI Conference on Artificial Intelligence*. **AAAI 2019**.

MT-GBDT: Multi-Task Gradient Boosting Decision Tree for Diabetes Prediction
- Z Wang, **Y Qu**, G Sui, J Shen, W Zhang, Z Zhao, G Ning, Y Yu.
- Submitted to *IEEE International Conference on Bioinformatics and Biomedicine*. **BIBM 2018**.

Product-based Neural Networks for User Response Prediction over Multi-field Categorical Data
- **Y Qu**, B Fang, W Zhang, R Tang, M Niu, H Guo, Y Yu, and X He.
- *ACM Transactions on Information Systems*. **TOIS**.

QA4IE: A Question Answering based Framework for Information Extraction
- L Qiu, H Zhou, **Y Qu**, W Zhang, S Li, S Rong, D Ru, L Qian, K Tu and Y Yu.
- In *Proceedings of The 16th International Semantic Web Conference*. **ISWC 2018** (oral).

Label-aware Double Transfer Learning for Cross Specialty Medical Named Entity Recognition
- Z Wang, **Y Qu**, L Chen, J Shen, W Zhang, S Zhang, Y Yu, Y Gao, G Gu, and K Chen.
- *In Proceedings of the 16th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Techniques.* **NAACL HLT 2018** (oral, 6.73%).

Adversarial Representation Learning for Domain Adaptation
- Jian Shen, **Yanru Qu**, Weinan Zhang, Yong Yu.
- *In Proceedings of The 32nd AAAI Conference on Artificial Intelligence.* **AAAI 2018**.

Product-based Neural Networks for User Response Prediction
- **Yanru Qu**, Han Cai, Kan Ren, Weinan Zhang, Yong Yu, Ying Wen, Jun Wang.
- *In Proceedings of The 16th IEEE International Conference on Data Mining.* **ICDM 2016** (short paper, oral).

Selected Awards

- **National Scholarship for Graduate Students** (Top 3 students in CS Department) *2018*
- **National Scholarship for Graduate Students** (Top 5 students in CS Department) *2017*

Research and Work Experiences

Research on Graph Networks and Recommender Systems **MILA, Montreal**
Student Intern, Advisors: Prof. Jian Tang *June. 2018 - present*
- Working on Graph Representations and Recommender Systems

Deep Recommender System for Huawei App Market **Shanghai, Shenzhen**
Program Leader, Advisors: Prof. Weinan Zhang, Prof. Yong Yu *Mar. 2017 - Mar. 2018*
- A joint program between APEX Lab (SJTU) and Noah's Ark Lab (Huawei Co. Ltd) with over CNY ¥ 1 million fundings.
- Served as the program Leader, and developed a deep distributed recommender system for Huawei App Market.
- Achieved average **35%** Click-Through-Rate improvement in online A/B test.
- Defeated the winning solution (libFFM) in Criteo Display Advertising Challenge.
- Corresponding work was accepted by **TOIS**.

Research on Deep Representation Learning **APEX, Shanghai**
Student Researcher, Advisors: Prof. Weinan Zhang, Yong Yu and Jun Wang (UCL) *Sep. 2015 - June. 2018*
- Working on deep representation learning for recommender systems, natural language processing, knowledge graph, and transfer learning. More specifically, learning representations and feature interactions for categorical or mixture type data.
- Here is a brief introduction to some selected papers.
  - **Product-based Neural Networks (Recommender System)**
    Discussed a coupled gradient issue and an insensitive gradient issue of state-of-the-art recommendation models.
    Proposed kernel product as well as network-in-network architectures to learn feature interactions.
    The proposed model achieved great improvements in both offline and online evaluations.
  - **Label-aware Double Transfer Learning (Natural Language Processing)**
    Introduced a label-aware assumption which is critical in real-world Named Entity Recognition systems.
    Proved the equivalence of the L2 distance in parameter space and the KL-divergence in model output distributions.
  - **Text-driven Graph Embedding with Pairs Sampling (Knowledge Graph)**
    Proposed a new explanation of Random Walk (RW) from the perspective of neighborhood joint probability.
    Proposed an efficient sampling policy which reduces more than 99.9% training pairs compared with RW.
    Proposed an inductive graph embedding model to make full use of textual information on graphs.
  - **Adversarial Representation Learning (Transfer Learning)**
    Proposed a domain-invariant representation learning approach for domain adaptation.
    Provided a generalization bound guarantee and a gradient analysis of the proposed method.

Sixiangjiyuan Co. Ltd. **Shenzhen, Beijing**
Chief Technology Officer *Sep. 2014 - Sep. 2015*
- Served as the Chief Technology Officer of the university venture company, Sixiangjiyuan Co. Ltd.
- Developed a campus online shopping platform, UHands, which got CNY ¥ 1 million angel investment.
- The platform was running at University of International Business and Economics, and North West Agriculture and Forestry University.

Open Source Projects

Product-Nets
http://github.com/Atomu2014/product-nets
Implementation of Product-based Neural Networks. 200+ stars on Github.