Yanru Qu

Master in Computer Science - Shanghai Jiao Tong University - Shanghai, China

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Education

University of Montreal — **Montreal, Canada**

June. 2018 - Dec. 2018 (Expected)

- Research Intern, Montreal Institute of Learning Algorithms (MILA)
- Advisor: Prof. Jian Tang and Prof. Jianyun Nie

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

Sep. 2016 - Mar. 2019 (Expected)

- M.S. in Computer Science
- GPA: Overall: 3.83/4 | Major: 3.93/4
- TOEFL: R29, L29, S24, W27, total 109; GRE: V150, Q170, W4.0
- Advisors: Prof. Weinan Zhang, Prof. Yong Yu, and Prof. Jun Wang (University College London)

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

Sep. 2012 - June. 2016

- B.E. in Computer Science, IEEE Honored Class
- GPA: Overall: 86.87/100 | Major: 90.59/100
- Advisors: Prof. Weinan Zhang, Prof. Yong Yu, and Prof. Jun Wang (University College London)

Research Interests

My research interests lie in the general area of machine learning and data mining, especially their applications in recommender system, information system, and knowledge graph, with a wish to push the limit of categorical data learning and user understanding, as well as build more accessible and personalized intelligent systems for people.

Publications (Google Scholar Profile)

Anonymous Submission

- **Yanru Qu**, Ting Bai, Weinan Zhang, Jianyun Nie, Jian Tang.
- In *Submission to the 30th Web Conference*. **WWW 2019**.

Anonymous Submission

- Jian Shen, Yunfei Liu, Yang Yang, **Yanru Qu**, Weinan Zhang, Yong Yu.
- In *Submission to the 30th Web Conference*. **WWW 2019**.

Anonymous Submission

- L Chen, **Y Qu**, Z Wang, L Qiu, W Zhang, K Chen, S Zhang, Y Yu.
- In *Submission to the 30th Web Conference*. **WWW 2019**.

Anonymous Submission

- Z Wang, **Y Qu**, G Sui, J Shen, W Zhang, Z Zhao, G Ning, Y Yu.
- In *Submission to the 30th Web Conference*. **WWW 2019**.

Anonymous Submission

- Jianhua Han, Liang Yin, **Yanru Qu**, Weinan Zhang, Yong Yu.
- In *Submission to the 30th Web Conference*. **WWW 2019**.

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, oral rate: 6.73%).

Wassertein Distance Guided 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** (citation: 19).

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** (oral, citation: 38).

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 Knowledge Graphs and Recommender Systems **MILA, Montreal**
Student Intern, Advisors: Prof. Jian Tang and Prof. Jianyun Nie *June. 2018 - present*
- Here is a brief introduction to some selected works. Corresponding works are submitted to WWW 2019.
  - **Matching-based Recommendation with Knowledge Graph**
    Incorporated knowledge graph to solve sparsity problems in recommender systems.
    Proposed a novel matching-based framework for recommendation on (large) graphs.
  - **Leaning Inductive Graph Embedding with Improved Sampling Strategy**
    Proposed an efficient sampling strategy which reduces 99% training samples compared to Random Walk.
    Proposed an inductive graph embedding model to make full use of textual information on graphs.
  - **Review Scheduling for Online Learners with Model-based Reinforcement Learning**
    Proposed a novel model-based RL model for online learning systems, which uses a memory model to model user behaviors, adopts multi-task learning to boost performance, and provide pseudo rewards to solve sparse rewards.

Deep Recommender System for 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 an app market with over CNY ¥ 1,400,000 fundings.
- Served as the program Leader, and developed a deep distributed recommender system for the 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 Data Mining and Deep Learning **APEX, Shanghai**
Student Researcher, Advisors: Prof. Weinan Zhang, Yong Yu and Jun Wang (UCL) *Sep. 2015 - June. 2018*
- Here is a brief introduction to some selected works. Corresponding works are already published.
  - **Product-based Neural Networks (Recommender Systems)**
    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 (Information Extraction)**
    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.
  - **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.

UHands: A Campus Online Shopping Platform **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, running at 2 Universities.
- The venture company got CNY ¥ 1,000,000 angel investment.

Open Source Projects

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