Yanru Qu

Ph.D. in Computer Science - University of Illinois, Urbana-Champaign

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Education

University of Illinois, Urbana-Champaign **Illinois, U.S.**
Aug. 2019 - 2021, Aug. 2024 - present

○ Ph.D. in Computer Science
○ Advisor: Prof. **Ge Liu**, Prof. **Jiaxuan You**, Prof. **Jiawei Han**

Shanghai Jiao Tong University **Shanghai, China**
Sep. 2012 - Mar. 2019

○ M.S. in Computer Science, GPA: 3.83/4, Major: 3.93/4
○ B.E. in Computer Science (IEEE Honored Class), GPA: 86.87/100, Major: 90.59/100
○ Advisors: Prof. **Weinan Zhang**, Prof. **Yong Yu**

Research Interests

Generative modeling and representation learning, with a focus on flow/diffusion-based models for AI for Science, including molecular and protein design, as well as foundations in NLP and recommender systems.

Publications (⇒ Google Scholar Profile, cited by 3,800)

Journals

Flow Matching Meets Biology and Life Science: A Survey
○ Z Li, Z Zeng, X Lin, F Fang, **Yanru Qu**, Z Xu, Z Liu, X Ning, T Wei, G Liu, H Tong, J He
○ *Accepted to npj Artificial Intelligence, 2025*

Product-based Neural Networks for User Response Prediction over Multi-field Categorical Data
○ **Yanru Qu**, B Fang, W Zhang, R Tang, M Niu, H Guo, Y Yu, X He
○ *In ACM Transactions on Information System (TOIS)* (cited by 270+)

Conference (Selected)

Generative Modeling / AI4Science

Variable-Length Generative Protein Design via Poisson Process Flow
○ Chaoran Cheng, **Yanru Qu**, Yuxin Chen, Zhanghan Ni, Ruihan Guo, Jiajun Fan, Ge Liu
○ *In Submission to ICML'26*

Protein Autoregressive Modeling via Multiscale Structure Generation
○ **Yanru Qu***, Cheng-Yen Hsieh*, Zaixiang Zheng, Ge Liu, Quanquan Gu
○ *In Submission to ICML'26*

h-MINT: Modeling Pocket-Ligand Binding with Hierarchical Molecular Interaction Network
○ **Yanru Qu**, Y Zhang, W Tan, X Kong, X Zhou, C Cheng, M Blanchette, J You, G Liu
○ *In Proceedings of ICLR'26*

Training Free Guided Flow Matching with Optimal Control
○ Luran Wang, Chaoran Cheng, Yizhen Liao, **Yanru Qu**, Ge Liu
○ *In Proceedings of ICLR'25*

MolCRAFT: Structure-Based Drug Design in Continuous Parameter Space
○ **Yanru Qu***, K Qiu*, Y Song*, J Gong, J Han, M Zheng, H Zhou, W Ma
○ *In Proceedings of ICML'24* (cited by 60+)

Unified Generative Modeling of 3D Molecules via Bayesian Flow Networks
- Y Song*, J Gong*, **Yanru Qu**, H Zhou, M Zheng, J Liu, W Ma
- *In Proceedings of ICLR'24 (Oral, cited by 60+)*

NLP / Representation Learning

Coda: Contrast-enhanced and diversity-promoting data augmentation for natural language understanding
- **Yanru Qu**, Dinghan Shen, Yelong Shen, Sandra Sajeev, Jiawei Han, Weizhu Chen
- *In Proceedings of ICLR'21 (cited by 110+)*

Dynamically Fused Graph Network for Multi-hop Reasoning
- Yunxuan Xiao*, **Yanru Qu***, Lin Qiu*, Hao Zhou, Lei Li, Weinan Zhang, Yong Yu
- *In Proceedings of ACL'19 (Oral) (cited by 100+)*

Label-aware Double Transfer Learning for Cross Specialty Medical Named Entity Recognition
- Zhenghui Wang, **Yanru Qu**, Liheng Chen, Jian Shen, Weinan Zhang, Shaodian Zhang, Yimei Gao, Gen Gu, Ken Chen, and Yong Yu
- *In Proceedings of NAACL-HLT'18 (Oral) (cited by 300+)*

Recommender System

MAP: A Model-agnostic Pretraining Framework for Click-through Rate Prediction
- J Lin, **Yanru Qu** (corresponding author), W Guo, X Dai, R Tang, Y Yu, W Zhang
- *In Proceedings of KDD'23*

An End-to-End Neighborhood-based Interaction Model for Knowledge-enhanced Recommendation
- **Yanru Qu***, Ting Bai*, Weinan Zhang, Jianyun Nie, Jian Tang
- *In Workshop of DLP-KDD'19 (Best Paper)*

Wassertein Distance Guided Representation Learning for Domain Adaptation
- Jian Shen, **Yanru Qu**, Weinan Zhang, Yong Yu
- *In Proceedings of AAAI'18 (cited by 1200+)*

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 ICDM'16 (Oral) (cited by 890+)*

Book & Patent

Hands on Natural Language Processing
- Kewei Tu, Xinyu Wang, **Yanru Qu**, Yong Yu
- *Posts & Telecom Press (2024)*

User behavior prediction method and apparatus, and behavior prediction model training method and apparatus
- Ruiming Tang, Minzhe Niu, **Yanru Qu**, Weinan Zhang, Yong Yu
- *US Patent 11,531,867*

Experiences (Selected)

Research Intern at ByteDance Seed — San Jose, Ca, US
*Worked on Protein Design with **Cheng-Yen Hsieh**, **Zaixiang Zheng** and Prof. **Quanquan Gu*** — *May. - Dec. 2025*
- Submitted a paper to ICML'26.

Research Intern at Tsinghua Air — Beijing, China
*Worked on Molecule Generation with Prof. **Hao Zhou** and Prof. **Weiying Ma*** — *Aug. 2023 - Aug. 2024*
- Published a paper in ICLR'24 (oral), and a paper in ICML'24.

Research Intern at D365, Microsoft — Washington, US
*Worked on NLP with Dr. **Dinghan Shen**, Dr. **Yelong Shen**, and Dr. **Weizhu Chen*** — *May. - Dec. 2020*

- Published a paper in ICLR'21.

Research Intern at Mila   **Montreal, Canada**
Worked on GNN with Prof. Jian Tang and Prof. Jianyun Nie (UdeM)   *June. - Nov. 2018*
- Published a paper and won the **best paper award** of DLP-KDD'19.

Student Researcher at APEX Lab, SJTU   **Shanghai, China**
Worked with Prof. Weinan Zhang, Prof. Yong Yu   *Sep. 2015 - Mar. 2019*
- Published several papers in ACL, KDD, AAAI, etc.

Selected Awards

- **2024 Influential New Book Award & 2024 Influential Author Award** (Posts & Telecom Press, China)   *2024*
- **Best Paper Award** (DLP-KDD'19)   *2019*
- **Shanghai Outstanding Graduate** (Top 3 in CS Department)   *2019*
- **National Scholarship for Graduate Students** (Top 3 in CS Department)   *2018*
- **National Scholarship for Graduate Students** (Top 5 in CS Department)   *2017*

Open Source Projects

- Implementation of **knowledge-enhanced neighborhood interaction** framework, 60+ stars on github
- Implementation of **product-nets** and **its distributed version**, 500+ stars on github