Qi Yan

qi.yan@ece.ubc.ca qiyan98.github.io
X321 ICICS, 2633 Main Mall, The University of British Columbia, Vancouver, BC Canada V6T 1Z4

EDUCATION

University of British Columbia (UBC) Jan. 2022 - Present
Ph.D. in Electrical and Computer Engineering, GPA: 93.5%/A+. Vancouver, Canada
Supervisors: *Prof. Renjie Liao* and *Prof. Lele Wang*

Swiss Federal Institute of Technology in Lausanne (EPFL) Sep. 2019 - Feb. 2022
MSc in Mechanical Engineering, GPA: 5.5/6.0, Thesis: 6.0/6.0. Lausanne, Switzerland

Shanghai Jiao Tong University (SJTU) Sep. 2015 - Jun. 2019
B.E. in Nuclear Engineering with distinction, GPA: 3.7/4.0 (88/100), Ranking: 2/33. Shanghai, China

PUBLICATIONS & SUBMISSIONS

1. B. Xu*, **Q. Yan***, R. Liao, L. Wang, L. Sigal, "Joint Generative Modeling of Scene Graphs and Images via Diffusion Models", *under review*.

2. **Q. Yan**, R. Seraj, J. He, L. Meng, T. Sylvain, "AutoCast++: Enhancing World Event Prediction with Zero-shot Ranking-based Context Retrieval", *under review*. [arXiv]

3. **Q. Yan**, Z. Liang, Y. Song, R. Liao, L. Wang, "SwinGNN: Rethinking Permutation Invariance in Diffusion Models for Graph Generation", *under review*. [arXiv] [code]

4. **Q. Yan**, J. Zheng, S. Reding, S. Li, I. Doytchinov, "CrossLoc: Scalable Aerial Localization Assisted by Multimodal Synthetic Data", *CVPR 2022*. [arXiv] [code] [dataset] [video] [website]

5. Y. Liu, **Q. Yan**, A. Alahi. "Social NCE: Contrastive Learning of Socially-aware Motion Representations", *ICCV 2021*. [arXiv] [code] [video] [website]

6. **Q. Yan**, L. Jiang and S. S. Kia. "Measurement Scheduling for Cooperative Localization in Resource-Constrained Conditions", *IEEE Robotics and Automation Letters*, vol. 5, no. 2, April 2020 (also selected for *ICRA 2020* conference presentation). [arXiv] [code] [video]

7. **Q. Yan**, R. Li, and X. Meng. "Tribo-Dynamic Simulation and Motion Control of a Rotating Manipulator Based on the Load and Temperature Dependent Friction", *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, September 2020. [pdf] [code]

INTERNSHIPS

Borealis AI May 2023 - Sep. 2023
Research Intern, Mentors: Lili Meng, Tristan Sylvain, Eric Jiawei He Vancouver, Canada
Improved predictions of future world events using linguistic context from news articles.

Schindler EPFL Lab Feb. 2021 - Jul. 2021
Applied Research Intern, Mentors: Qixuan Zhang, Nicola Ischia Lausanne, Switzerland
Developed prototypes for passenger gaze tracking and image processing for elevator shaft machinery monitoring.

RESEARCH EXPERIENCES

University of British Columbia (UBC) Jan. 2022 - Present
Research Assistant, Advisors: Prof. Renjie Liao, Prof. Lele Wang Vancouver, Canada

- Developed a novel graph diffusion model for joint scene graph and image generation, achieving state-of-the-art layout generation quality and enhancing downstream tasks through paired graph-image data generation.
- Studied learning hardness of permutation invariant objective in graph diffusion models and proposed a novel non-invariant graph transformer scaling up to large graphs with state-of-the-art performance. [arXiv] [code]

Swiss Federal Institute of Technology in Lausanne (EPFL) Feb. 2020 - Feb. 2022
Research Assistant, Advisors: Dr. Iordan Doytchinov, Prof. Alexandre Alahi Lausanne, Switzerland

· Developed a full-stack pipeline using synthetic data to enhance visual localization. Our method can generate multi-modal data from standard geo-data and create extensive sim-to-real datasets. We applied cross-modal representation learning to improve visual re-localization and achieved state-of-the-art accuracy. [Paper] [Code]

· Boosted DRL-based robot navigation robustness and reduced collisions using contrastive learning for motion representation. We used prior knowledge of unfavorable events to create negative samples. [Paper] [Code]

University of California, Irvine (UCI) Jul. 2018 - Sep. 2019
Research Assistant, Advisor: Prof. Solmaz S. Kia Remote

· Developed a new multi-robot cooperative localization algorithm with reduced communication and computation costs. Tackled the NP-hard peer robot selection with a sub-optimal method minimizing state estimation uncertainty, achieving real-time efficiency and comparable performance to costly algorithms. [Paper] [Code]

Shanghai Jiao Tong University (SJTU) Dec. 2017 - Dec. 2018
Research Assistant, Advisor: Prof. Xianghui Meng Shanghai, China

· Conducted complete dynamics modeling for the friction torque at a manipulator joint, and designed a new adaptive sliding mode controller with provable convergence. [Paper] [Code]

HONORS AND AWARDS

UBC Graduate Support Initiative Award (CAD $7,000)	2023
UBC Four Year Doctoral Fellowship (4YF, CAD $18,200 per year plus tuition)	2022
Outstanding Graduate of Shanghai Jiao Tong University (top 20%)	2019
Excellent Design Award for Undergraduate Thesis (12/133)	2019
Scholarship of Nuclear Power Institute of China (2/33)	2017, 2018
Scholarship of Shanghai Nuclear R&D Institute (2/33)	2016

MISCELLANEOUS

Academic Services Reviewer for IEEE Sensors Letters (2020), IEEE RA-L (2021), IEEE GLOBECOM (2023), NeurIPS (2023), ICLR (2024).

Teaching Assistant
UBC CPEN400D: Deep Learning [page] 2022/23 Winter Term 2
UBC EECE571F: Deep Learning with Structures [page] 2022/23 Winter Term 1

Presentations Score-based Generative Models for Graph, SFU-UBC AI Research Day Dec. 2022