Tingyu Qu [Email] • [Google Scholar] • [GitHub] • [Homepage]

Education

KU Leuven	Leuven, Belgium
Ph.D. in Computer Science	Sept.2020 - Mar.2025
• Advisor: Prof. Marie-Francine Moens & Prof. Tinne Tuytelaars	
• Thesis: Efficient Methods for Alignment and Generation in Vision and Language	
Master of Artificial Intelligence	Sept.2019 - Sept.2020
• Thesis: Autoencoder with Multi-directional Ensemble of Regression and Classification Trees	(MERCS)
Master of Statistics	Sept.2017 - Jun.2019
• Thesis: Mining Health Records Using Machine Learning Methods	
Hebei University	Baoding, China
Bachelor of Mathematics and Applied Mathematics	Sept.2013 - Jun.2017
• Academic scholarship: Academic year 2014-2015, 2015-2016	

- Merit Student: (Top 5% students in Department of Mathematics), Academic year 2015-2016
- Thesis: Application of Concept Lattice in Data Mining

Research & Work Experience

KU Leuven

Research Associate

- Advisor: Prof. Tinne Tuytelaars
- Research Interests: Vision-Language, Multimodal Large Language Models, Efficient AI, Generative Models

Research Interest

Vision-Language models are key to artificial general intelligence. My work includes building vision-language models for context-rich multimodal inputs (*NAACL2024*, *WACV2023*), designing efficient learning method for vision-language models (*ECCV2024*) and building multimodal large language models (*MLLMs*) (*Preprint2024*).

MLLMs have revolutionized our daily life. I worked on adapting image LLM for video understanding tasks, providing alternatives for building video LLMs (*Preprint2024*). Currently, I'm also exploring enhancing MLLMs' capabilities via feature routing, and improving generation quality of generative models using LLMs.

Efficient AI is crucial to address challenges in limited computational resources. I introduced routing functions to vision-language Parameter-Efficient Fine-Tuning (*ECCV2024*), improved the sampling process of generative models (*ICLR2024*), and explored training-free video LLMs (*Preprint2024*).

Generative Models unveil how machines perceive, reason, and create content. I worked on advancing the sampling algorithm for diffusion models through shifted time steps (*ICLR2024*), and improving personalized image generation (both method and benchmark; *Preprint2025*).

Selected Publications

- **Tingyu Qu**, Mingxiao Li, Tinne Tuytelaars, & Marie-Francine Moens. TS-LLaVA: Constructing Visual Tokens through Thumbnail-and-Sampling for Training-Free Video Large Language Models. *Preprint, Under Review. 2024* [Paper] [Code] [ModelScope Community]
- **Tingyu Qu**, Tinne Tuytelaars, & Marie-Francine Moens. Introducing Routing Functions to Vision-Language Parameter-Efficient Fine-Tuning with Low-Rank Bottlenecks. In Proceedings of the 18th European Conference on Computer Vision (ECCV 2024). [Paper][Code]
- Mingxiao Li^{*}, **Tingyu Qu**^{*}, Ruicong Yao, Wei Sun, & Marie-Francine Moens. Alleviating Exposure Bias in Diffusion Models through Sampling with Shifted Time Steps. In Proceedings of the Twelfth International Conference on Learning Representations (ICLR 2024). [Paper] [Code (DDPM ver.)][Code (ADM ver.)]

Leuven, Belgium Mar.2025 - present

- **Tingyu Qu**, Tinne Tuytelaars, & Marie-Francine Moens. Visually-Aware Context Modeling for News Image Captioning. In Proceedings of the 2024 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies. (NAACL 2024). [Paper] [Code]
- **Tingyu Qu**, Tinne Tuytelaars, & Marie-Francine Moens. Weakly Supervised Face Naming With Symmetry-Enhanced Contrastive Loss. In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2023). [Paper] [Code]
- Wei Sun, **Tingyu Qu**, Mingxiao Li, Jesse Davis, & Marie-Francine Moens. Mitigating Negative Interference in Multilingual Knowledge Editing through Null-Space Constraints. *Findings of the Association for Computational Linguistics: ACL 2025 (ACL-Findings 2025)* [Paper] [Code]
- Mingxiao Li, **Tingyu Qu**, Tinne Tuytelaars, & Marie-Francine Moens. Towards More Accurate Personalized Image Generation: Addressing Overfitting and Evaluation Bias. *Preprint, Under Review. 2025* [Paper] [Code]
- Minjae Lee^{*}, Minhyuk Seo^{*}, **Tingyu Qu**, Tinne Tuytelaars, Jonghyun Choi. OASIS: Online Sample Selection for Continual Visual Instruction Tuning. *Under Review. 2025* [Paper]
- Xi Shi, **Tingyu Qu**, Gijs Van Pottelbergh, Marjan van den Akker & Bart De Moor. A Resampling Method to Improve the Prognostic Model of End-Stage Kidney Disease: A Better Strategy for Imbalanced Data. Frontiers in Medicine Volume 9 - 2022. [Paper] (Journal version of my MSc. Stat. thesis)

* denotes equal contribution

SERVICE

Reviewer: ACL, CVPR, ICCV, BMVC, NeurIPS, AAAI, ICLR, AISTATS, ICML, TPAMI

Area Chair: ACL Rolling Review

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