Qiao Xiao, Ph.D.

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Education

Oct. 2021 – Sept. 2025 **Ph.D., Eindhoven University of Technology,** Netherlands.
Researches: *Sparse Training, Data Selection, AI Efficiency.*
Supervisors: Decebal Constantin Mocanu and Mykola Pechenizkiy

Sept. 2015 – Jan. 2018 **M.Sc., Harbin Institute of Technology,** China.
Faculty of Electronic and Information Engineering
Researches: *Computer Vision, Deep Learning*

Sept. 2010 – Jun. 2014 **BEng., Shenzhen University,** China.
Faculty of Information Engineering.

Work Experience

Oct. 2025 – Present **Postdoc Researcher, Eindhoven University of Technology,** Netherlands.
Researches: *LLMs Efficiency and Safety, Model Sparsity*
Supervisors: Mykola Pechenizkiy and Decebal Constantin Mocanu

Jun. 2025 – Nov. 2025 **Research Visitor, ETH Zurich,** Switzerland.
Researches: *LLMs Sparse Pretraining, Model Sparsity.*
Supervisors: Torsten Hoefler

Jan. 2025 – Apr. 2025 **Research Visitor, University of Luxembourg,** Luxembourg.
Researches: *LLMs Efficiency, Federated Learning.*
Supervisors: Decebal Constantin Mocanu

Apr. 2020 – Jul. 2021 **Research Assistant,** Southern University of Science and Technology.
Researches: *I mainly focused on developing algorithms that utilize transfer learning and semi-supervised learning to harness the potential of unlabeled datasets.*
Supervisors: Yu Zhang

Mar. 2018 – Mar. 2020 **Researcher,** PingAn Tech. AI Lab.
Researches: *I am responsible for implementing algorithms in scene text recognition and detection, and deploying them to the cloud.*

Research Interests

• LLMs Efficiency and Safety • Sparse Neural Networks • Data Pruning • Federated Learning

Research Publications (* indicates equal contribution)

Conference Papers

1. Boqian Wu*, **Qiao Xiao***, Shunxin Wang, Strisciuglio Nicola, Mykola Pechenizkiy, Maurice Van Keulen, Decebal Constantin Mocanu, and Elena Mocanu, "Dynamic Sparse Training versus Dense Training: The Unexpected Winner in Image Corruption Robustness," in ***ICLR***, 2025.

2. Boqian Wu*, **Qiao Xiao***, Shiwei Liu, Lu Yin, Mykola Pechenizkiy, Decebal Constantin Mocanu, Maurice Van Keulen, and Elena Mocanu, "E2ENet: Dynamic Sparse Feature Fusion for Accurate and Efficient 3D Medical Image Segmentation," in ***NeurIPS***, 2024.

3. **Qiao Xiao**, Boqian Wu, Lu Yin, Christopher Gadzinski, Tianjin Huang, Mykola Pechenizkiy, and Decebal Constantin Mocanu, "Are Sparse Neural Networks Better Hard Sample Learners?" In ***BMVC***, 2024.
4. **Qiao Xiao***, Pingchuan Ma*, Adriana Fernandez-Lopez, Boqian Wu, Lu Yin, Stavros Petridis, Mykola Pechenizkiy, Maja Pantic, Decebal Constantin Mocanu, and Shiwei Liu, "Dynamic Data Pruning for Automatic Speech Recognition," in ***InterSpeech***, 2024.
5. Adriana Fernandez-Lopez, Honglie Chen, Pingchuan Ma, Lu Yin, **Qiao Xiao**, Stavros Petridis, Shiwei Liu, and Maja Pantic, "MSRS: Training Multimodal Speech Recognition Models from Scratch with Sparse Mask Optimization," in ***InterSpeech***, 2024.
6. Shiwei Liu, Tianlong Chen, Xiaohan Chen, Xuxi Chen, **Qiao Xiao**, Boqian Wu, Mykola Pechenizkiy, Decebal Mocanu, and Zhangyang Wang, "More ConvNets in the 2020s: Scaling up Kernels beyond 51x51 using Sparsity," in ***ICLR***, 2023.
7. **Qiao Xiao***, Boqian Wu*, Yu Zhang, Shiwei Liu, Mykola Pechenizkiy, Elena Mocanu, and Decebal Constantin Mocanu, "Dynamic Sparse Network for Time Series Classification: Learning What to "See"," in ***NeurIPS***, 2022.
8. Feiyang Ye, Baijiong Lin, Zhixiong Yue, Pengxin Guo, **Qiao Xiao**, and Yu Zhang, "Multi-objective meta learning," in ***NeurIPS***, 2021.
9. **Qiao Xiao** and Yu Zhang, "Distant transfer learning via deep random walk," in ***AAAI***, 2021.

Journal Articles

1. **Qiao Xiao**, Yu Zhang, and Qiang Yang, "Selective Random Walk for Transfer Learning in Heterogeneous Label Spaces," *IEEE Transactions on Pattern Analysis and Machine Intelligence* (***TPAMI***), 2024.
2. Jinjing Zhu, Feiyang Ye, **Qiao Xiao**, Pengxin Guo, Yu Zhang, and Qiang Yang, "A Versatile Framework for Unsupervised Domain Adaptation based on Instance Weighting," *IEEE Transactions on Image Processing* (***TIP***), 2024.

Preprints

1. **Qiao Xiao**, Alan Ansell, Lu Yin, Boqian Wu, Mykola Pechenizkiy, Shiwei Liu, and Decebal Constantin Mocanu, *Leave it to the Specialist: Repair Sparse LLMs with Sparse Fine-tuning via Sparsity Evolution*. arXiv:2505.24037, 2025.
2. **Qiao Xiao**, Boqian Wu, Andrey Poddubnyy, Elena Mocanu, Phuong Nguyen, Mykola Pechenizkiy, and Decebal Constantin Mocanu, *Addressing the Collaboration Dilemma in Low-Data Federated Learning via Transient Sparsity*. arXiv:2506.00932, 2025.
3. Bram Grooten, Farid Hasanov, Chenxiang Zhang, **Qiao Xiao**, Boqian Wu, Zahra Atashgahi, Ghada Sokar, Shiwei Liu, Lu Yin, Elena Mocanu, Mykola Pechenizkiy, and Decebal Constantin Mocanu, *NeuroTrails: Merging Sparse Backbones as the Key to Efficient Ensembling*. arXiv:2505.17909, 2025.
4. **Qiao Xiao**, Fanghui Liu, Boqian Wu, Maurice Van Keulen, Elena Mocanu, Decebal Constantin Mocanu, and Mykola Pechenizkiy, *Sharpness-driven Pruning from Transformers to LLMs: A Loss Landscape Perspective*. Under Review, 2025.

Skills

Languages	English, Mandarin Chinese, Cantonese.
Coding	Python (expert), C++/C (basic).
Tools	PyTorch, TensorFlow, Git, Slurm, Linux, Hugging Face.

Grants and Funding

2025 **NWO SURF Grant**, Snellius, Netherlands
Personal application EINF-13990 for 1 million SBU credits on the Netherlands' largest HPC.
Amount: 15,000 GPU hours (≈ €19,500)

2025 **LuxProvide Compute Grant**, MeluXina HPC, Luxembourg
Co-authored a successful grant application to Luxembourg's largest compute cluster.
Amount: 80,000 GPU hours (≈ €104,000)

2024 **NWO SURF Grant**, Snellius, Netherlands
Personal application EINF-12291 for 1 million SBU credits on the Netherlands' largest HPC.
Amount: 15,000 GPU hours (≈ €19,500)

2022 **NeurIPS Travel Grant**
Awarded a student travel grant to attend NeurIPS 2022, covering registration and accommodation.
Amount: ≈ €2,000

Teaching and Mentoring

2025 **Teaching Assistant**, Intelligent System, Luxembourg
I improved my teaching skills in classes of higher levels.

2022 **Teaching Assistant**, Machine Learning, Netherlands
During the Education master I learned the teaching craft with this internship.

2024 **Supervisor**, Boqian Wu, PhD student
Efficient and robust training of LLMs.

Invited Talk

Aug. 2025 **ETH, Zurich**, *Sparsity-Driven AI: Towards Greater Efficiency, Scalability, and Robustness.*

Jul. 2025 **ParameterLab**, *Addressing the Collaboration Dilemma in Low-Data Federated Learning.*

Aug. 2024 **TU/e**, *Dynamic Sparsity in Deep Learning: Towards Efficiency, Scalability, and Robustness.*

Community

Jan. 2026 **Organizer**. Elena Mocanu, Jafar Badour, Boqian Wu, **Qiao Xiao**, Decebal Constantin Mocanu. A Decade of Sparse Training: Why Do We Still Stick to Dense Training?. **AAAI 2026 Tutorial.**

Aug. 2023 **Organizer**. Elena Mocanu, Zahra Atashgahi, Ghada Sokar, Boqian Wu, **Qiao Xiao**, Bram Grooten, Shiwei Liu, Decebal Constantin Mocanu. Sparse Training for Supervised, Unsupervised, Continual, and Deep Reinforcement Learning with Deep Neural Networks. **IJCAI 2023 Tutorial.**

-Present **Member**. Reading Group organized by Google, MIT and University of Calgary.

2025 **Reviewer** at ICLR 2026, NeurIPS 2025, ICML 2025, CPAL 2025, NeurIPS 2023, ICLR SNN 2023, ECAI 2023, CVPR 2021.