

Qing Xu

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PROFILE SUMMARY

Final-year PhD candidate in Computer Science at the University of Nottingham (expected Oct 2026), specialising in medical image analysis and vision foundation models, with prior research experience at HKU, CUHK and TUM. Published 30+ peer-reviewed papers (20+ as first or co-first author) in leading venues including IEEE TMI, MedIA, IEEE TCSVT, IEEE TMM, npj Digital Medicine, MICCAI and NeurIPS, with 1,100+ Google Scholar citations (h-index 14) and an ESI Top 1% Highly Cited Paper (500+ citations). Led student teams to 1st place in the ISBI 2026 Foundation Model Challenge for Ultrasound Image Analysis and the MICCAI 2026 MultiBypass Surgical Action Triplet Challenge. At the University of Nottingham Ningbo China, co-supervised 5+ undergraduate and 5+ Master's final-year projects and led an eight-student team in the Faculty Undergraduate Research Practice (FURP) Programme. As a guest lecturer on Research Methods, integrated research and teaching by engaging students with cutting-edge research. Active reviewer for IEEE TMI, CVPR, ICCV and MICCAI.

EDUCATION

University of Nottingham	Nottingham, UK
<i>PhD in Computer Science – School of Computer Science</i>	Feb 2024 – Oct 2026
Supervisor: Prof. Xiangjian He & Prof. Rong Qu	
The University of Hong Kong	Hong Kong SAR
<i>MSc in Computer Science – School of Computer Science</i>	Sep 2022 – Aug 2023
Supervisor: Prof. Ping Luo	
University of Lincoln First Class Honors	Lincoln, UK
<i>BSc in Computer Science – School of Computer Science</i>	Jan 2019 – Sep 2021
Supervisor: Dr. Wenting Duan & Prof. Xujiang Ye	

PROFESSIONAL EXPERIENCE

Technische Universität München	Germany
<i>Research Intern (Remote), School of Computer Science</i>	June 2025 – Dec 2025
Supervisor: Prof. Nassir Navab	
University of Lincoln	UK
<i>Visiting Researcher (Full-time), School of Computer Science</i>	Feb 2025 – Oct 2025
Supervisor: Dr. Wenting Duan, Dr. Stefanie Thust & Prof. Dorothee P. Auer	
The Chinese University of Hong Kong	Hong Kong SAR
<i>Research Assistant (Full-time), Department of Electronic Engineering</i>	Aug 2023 – Feb 2024
Supervisor: Prof. Yixuan Yuan & Prof. Zhen Chen	
Hangzhou Jianpei Technology Co., Ltd.	Zhejiang, China
<i>AI Algorithm Engineer (Full-time)</i>	Jun 2021 – Feb 2022

PUBLICATION

Journal:

- Xu, Q.**, Luo, Y., Duan, W., & Chen, Z. (2025). Co-Seg++: Mutual Prompt-Guided Collaborative Learning for Versatile Medical Segmentation. *IEEE Transactions on Medical Imaging*, 45(5), 1947–1959. DOI: 10.1109/TMI.2025.3643631.
- Xu, Q.**, Li, J., He, X., Li, C., Tesema, F. B., Duan, W., ... & Chen, C. W. (2025). De-LightSAM: Modality-Decoupled Lightweight SAM for Generalizable Medical Segmentation. *IEEE Transactions on Circuits and Systems for Video Technology*, 36(3), 3782–3794. DOI: 10.1109/TCSVT.2025.3621309.
- Xu, Q.**, Zhang, Li, Y., ... & Chen, Z. (2026). FreqDINO++: A Frequency-Guided Multi-Task Routing Vision Foundation Model for Universal Ultrasound Analysis. *IEEE Transactions on Biomedical Engineering*. DOI: 10.1109/TBME.2026.3733527. (Just Accepted)
- Xu, Q.**, Chen, Y., Li, Y., Liu, Z., Lou, Z., Zhang, Y., ... & He, X. (2025). Mambavesselnet++: A Hybrid CNN-Mamba Architecture for Medical Image Segmentation. *ACM Transactions on Multimedia Computing, Communications and Applications*. DOI: 10.1145/3757324 (Just Accepted)
- Xu, Q.**, & Duan, W. (2024). DualAttNet: Synergistic fusion of image-level and fine-grained disease attention for multi-label lesion detection in chest X-rays. *Computers in Biology and Medicine*, 168, 107742. DOI: 10.1016/j.compbiomed.2023.107742.
- Xu, Q.**, Ma, Z., & Duan, W. (2023). DCSAU-Net: A deeper and more compact split-attention U-Net for medical

- image segmentation. *Computers in biology and medicine*, 154, 106626. DOI: 10.1016/j.compbiomed.2023.106626. (ESI Highly Cited Paper, 500+ Citations)
7. **Xu, Q.**, Lou, Z., Li, C., Li, Y., He, X., Berhanu, T. F., ... & Chen, Z. (2025). HER-Seg: Holistically Efficient Segmentation for High-Resolution Medical Images. *Medical Image Analysis*. (Minor Revision)
 8. **Xu, Q.***, Yuan, K*, Luo, Y., Zhai, Y., Duan, W., Navab, N., & Chen, Z. (2025). LapFM: A Laparoscopic Segmentation Foundation Model via Hierarchical Concept Evolving Pre-training. *Medical Image Analysis*. (Major Revision)
 9. Luo, Y*, **Xu, Q.***, Huang, H., Ouyang, Y., He, X., Chen, Z., & Duan, W. (2026). MSM-Seg: A Modality-and-Slice Memory Framework with Category-Agnostic Prompting for Multi-Modal Brain Tumor Segmentation. *IEEE Transactions on Multimedia*. (Just Accepted)
 10. Chen, Z.*, **Xu, Q.***, Liu, X., & Yuan, Y. (2025). UN-SAM: Domain-adaptive self-prompt segmentation for universal nuclei images. *Medical Image Analysis*, 103, 103607. DOI: 10.1016/j.media.2025.103607
 11. Li, Y.*, **Xu, Q.***, Zhang, Y., He, X., Zhang, Q., Yao, Y., ... & Chen, C. W. (2025). UniUltra: Interactive Parameter-Efficient SAM2 for Universal Ultrasound Segmentation. *IEEE Transactions on Multimedia*. DOI: 10.1109/TMM.2026.3687007. (Just Accepted)
 12. Lou, Z.*, **Xu, Q.***, Jiang, Z., He, X., Li, C., Chen, Z., ... & Duan, W. (2025). Nusegdg: Integration of heterogeneous space and gaussian kernel for domain-generalized nuclei segmentation. *Knowledge-Based Systems*, 322, 113641. DOI: 10.1016/j.knosys.2025.113641.
 13. Li, J.*, **Xu, Q.***, He, X., Liu, Z., Zhang, D., Wang, R., ... & Qiu, G. (2025). CFFormer: Cross CNN-Transformer channel attention and spatial feature fusion for improved segmentation of heterogeneous medical images. *Expert Systems with Applications*, 295, 128835. DOI: 10.1016/j.eswa.2025.128835.
 14. Chen, Z., **Xu, Q.**, Wu, J., Yang, B., Zhai, Y., Guo, G., ... & Luo, J. (2026). Quantifying the Plausibility Gap in Generative AI for Surgical Video Generation with Expert Assessment. *npj Digital Medicine*. (Just Accepted)
 15. Chen, S., Hu, H., Zeng, H., Li, C., **Xu, Q.**, Zhang, L., & Xu, H. (2026). OMD: optimal transport-guided multimodal disentangled learning for leptomeningeal metastasis diagnosis. *Information Fusion*, 104121. DOI: 10.1016/j.inffus.2025.104121.
 16. Xu, H., Sun, J., Miao, Q., Hong, Y., Xu, Q., Li, C., ... & Huang, Y. (2026). Synergistic hierarchical and graph attention networks for robust leptomeningeal metastasis detection in brain MRI. *Applied Soft Computing*, 114861. DOI: doi.org/10.1016/j.asoc.2026.114861.
 17. Wang, Y., Xie, W., Li, C., **Xu, Q.**, Du, Z., Zhong, Z., & Tang, L. (2026). Automated microvascular invasion prediction of hepatocellular carcinoma via deep relation reasoning from dynamic contrast-enhanced ultrasound. *Computerized Medical Imaging and Graphics*, 102606. DOI: 10.1016/j.compmedimag.2025.102606.
 18. Li, Y., Zou, Y., He, X., **Xu, Q.**, Liu, M., Jin, S., ... & Zhang, J. (2025). Hfa-unet: hybrid and full attention unet for thyroid nodule segmentation. *Knowledge-Based Systems*, 114245. DOI: 10.1016/j.knosys.2025.114245.
 19. Tian, Y., Li, Y., Xia, W., Xu, T., Zhang, J., Shi, L., Liu, J., Wang, Y., Liu, M., **Xu. Q.**, ... & He, X. (2026). Cesarean Scar Defect Segmentation in Transvaginal Ultrasound Images: a Dataset and Benchmark. *Scientific Data*. DOI: doi.org/10.1038/s41597-026-08213-z. (Just Accepted)

Conference:

1. **Xu, Q.**, He, X., Duan, W., Luo, J., & Chen, Z. (2026). Rethinking the Adaptation of Vision Foundation Models for Efficient Cell Segmentation. In *International Conference on Medical Image Computing and Computer-Assisted Intervention* (MICCAI, Just Accepted).
2. **Xu, Q.**, Duan, W., & Chen, Z. (2025). Co-seg: Mutual prompt-guided collaborative learning for tissue and nuclei segmentation. In *International Conference on Medical Image Computing and Computer-Assisted Intervention* (MICCAI), 130-140. DOI: 10.1007/978-3-032-04927-8_13.
3. Luo, Y.*, **Xu, Q.***, Ouyang, Y., & Chen, Z. (2026). RASP: Bridging the Long-Tail Gap in Surgical Video Understanding via Retrieval-Augmented Perception. In *International Conference on Medical Image Computing and Computer-Assisted Intervention* (MICCAI, Just Accepted).
4. Lou, Z. *, **Xu, Q. ***, Thust, S., Auer, D. P., Chen, Z., ... & Duan, W. (2026). MicroBT: Centroid-Guided Synergistic Learning for Multi-Modal Micro Brain Tumor Segmentation and Counting. In *British Machine Vision Conference*. (Just Accepted)
5. Zhang, Y.*, **Xu, Q.***, Li, Y., He, X., Zhang, Q., Haque, M., ... & Chen, Z. (2026). Freqdino: Frequency-guided adaptation for generalized boundary-aware ultrasound image segmentation. In *International Symposium on Biomedical Imaging* (ISBI), 1-5. DOI: 10.1109/ISBI61048.2026.11515730.
6. Zhang, Y. *, **Xu, Q. ***, Li, Y. *, He, X., & Chen, Z. (2026). Towards Universal Ultrasound Analysis: Parameter-Efficient Foundation Model With Task-Aware Routing for Heterogeneous Multi-Task Learning. In *International Symposium on Biomedical Imaging* (ISBI), 1-4. DOI: 10.1109/ISBI61048.2026.11515746.
7. Jiao, Y.*, **Xu, Q.***, Luo, Y.*, He, X., Chen, Z., & Duan, W. (2026). TM-UNet: Token-Memory Enhanced Sequential

Modeling for Efficient Medical Image Segmentation. In *International Symposium on Biomedical Imaging (ISBI)*, 1-4. DOI: 10.1109/ISBI61048.2026.11515341.

8. Li, C., Li, W., Liu, H., Liu, X., **Xu, Q.**, Chen, Z., ... & Yuan, Y. (2024). Flaws Can Be Applause: Unleashing Potential of Segmenting Ambiguous Objects In SAM. In *Advances in neural information processing systems (NeurIPS)*, 37, 45578-45599.
9. Liu, Z., Li, J., He, X., **Xu, Q.**, Chen, X., & Zhou, S. (2025). Swin-VasMamba: A Topologically Constrained Model For 3D Vascular Segmentation. In *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 1-5. DOI: 10.1109/ICASSP49660.2025.10887771.

Workshop:

1. **Xu, Q.**, Kuang, W., Zhang, Z., Bao, X., Chen, H., & Duan, W. (2023). In *International Workshop on Machine Learning in Medical Imaging (MLMI)*, 227-236. DOI: 10.1007/978-3-031-45673-2_23.
2. **Xu, Q.**, & Duan, W. (2021). An Automatic Nuclei Image Segmentation Based on Multi-Scale Split-Attention U-Net. In *MICCAI Workshop on Computational Pathology*, 236-245.
3. Luo, Y., **Xu, Q.***, Feng, J., Qian, G., & Duan, W. (2024) Med-FastSAM: Improving Transfer Efficiency of SAM to Domain-Generalised Medical Image Segmentation. In *Advancements In Medical Foundation Models: Explainability, Robustness, Security, and Beyond*.
4. Wu, T., **Xu, Q.***, He, X., Weekes, O., Brown, J., & Duan, W. (2026). RoLID-11K: A Dashcam Dataset for Small-Object Roadside Litter Detection. In *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) Workshops*, 568-575.

PATENT/SOFTWARE COPY

1. A System for Medical Image Segmentation, Accepted, 2024109485302.
2. A Method, System, and Device for Medical Image Segmentation, Accepted, 2025107656170.
3. Fast and Flexible Interactive Medical Image Segmentation System, Accepted, 2025SR2477206.
4. An Image Feature Extraction Method and Device Based on an Improved Masked Autoencoder Model, Under Review, 2025114111830.
5. A Medical Image Segmentation Method Based on a Hybrid Convolutional Neural Network and Transformer, Under Review, 2025100014479.
6. A Lightweight Universal High-Resolution Medical Image Segmentation Network, Under Review, 2024118343230.
7. Frequency-Guided Universal Ultrasound Image Boundary-Aware Segmentation System, Under Review, 2025118078511.
8. A Multi-Label Chest X-ray Lesion Detection System Based on Self-Prompting Mechanism, Under Review, 2025118085267.

AWARD

1. **1st place** in the ISBI 2026 Foundation Model Challenge for Ultrasound Image Analysis. (Team Leader)
2. **1st place** in the MICCAI 2026 MultiBypass Surgical Action Triplet Challenge.
3. **1st place** in the MICCAI 2026 BraTS-Metastases (BraTS-METS) Challenge. (Team Leader)
4. **4st place** in the MICCAI 2026 Foundation Model for Ultrasound Biometry Challenge. (Team Leader)

OTHERS

Academic Services: Journal Reviewer (TMI, TMM, JBHI, TCSV), Conference Reviewer / PC Member (CVPR, ECCV, ICCV, BMVC, MICCAI, ISBI)