Xiaokang Qu

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Education

2025 – present **D.Eng. student in Network and Information Security**, University of Science and Technology of China (USTC).

2023 – 2025 **Master's student in Electronic Information**, University of Science and Technology of China (USTC)

2018 – 2022 **B.E. in Internet of Things Engineering**, Hainan University.

Research Interests

My research focuses on reliable and controllable AI, particularly large language and vision-language models, retrieval-augmented generation, and evidence-driven evaluation. My current interests include tool-using agents and multi-agent systems for translating complex requirements into verifiable outputs, with applications to communication network design. I also study the structure and functional robustness of complex networks.

Publications

Journal Articles

1. C. Wen, Y. Lin, **X. Qu**, N. Li, Y. Liao, X. Li, and H. Lin, "Remote sensing retrieval-augmented generation: Bridging remote sensing imagery and comprehensive knowledge with a multimodal dataset and retrieval-augmented generation model," *IEEE Geoscience and Remote Sensing Magazine*, vol. 14, no. 2, pp. 85–103, 2026. DOI: 10.1109/MGRS.2025.3645852.

Conference Articles

1. **X. Qu**, T. Chu, Z. Fan, J. Ma, T. Fan, and L. Lü, "Topointent: Compiling security intent into executable, compliance-checked network topologies," Accepted at ACSAC, 2026. arXiv: 2608.13389. URL: https://arxiv.org/abs/2608.13389.

Preprint Articles

1. **X. Qu**, C. Guo, T. Fan, and L. Lü, "Functional robustness of food webs: A dynamic biomass framework with vital species sets and cluster influence," *bioRxiv*, 2026, Preprint. DOI: 10.64898/2026.08.27.747453.
2. **X. Qu** and Y. Lin. "Hexeval: An evidence-driven hexagonal framework for multidimensional scholar assessment." arXiv: 2608.10584 [cs.AI].

Patent Applications

1. L. Lü, **X. Qu**, Q. Zhang, Y. Lang, and T. Fan, "A Dual-Modal Emotion Recognition Method Based on Adaptive Feature Fusion," Chinese Patent Application CN202511906031.8, Publication No. CN121884407A. *Under substantive examination.*
2. L. Lü, **X. Qu**, W. Shi, J. Zhang, and T. Fan, "A GNN-Based Talent Evaluation Model, Method, and Talent Selection Method," Chinese Patent Application CN202510445988.0, Publication No. CN120509771A. *Under substantive examination.*
3. L. Lü, J. Jia, **X. Qu**, Q. Zhang, M. Lang, and T. Fan, "A StyleGAN-Based Data Augmentation and Retinal Image Vessel Processing Optimization Method," Chinese Patent Application CN202510709463.3, Publication No. CN120655523A. *Under substantive examination.*

Research & Engineering Projects

Jul. 2025 – Jul. 2026 **TopoIntent: Secure Intent-Driven Network Topology Generation**
Project Lead. Developed an LLM-based framework for generating and validating security-aware network topologies.

Aug. 2026 – Oct. 2026 **Secure Collaboration and Privacy Protection for Energy Data Spaces**
Project Lead. Led the design of a technical solution for secure multi-party collaboration and privacy protection in trusted energy data spaces.

Jun. 2024 – Sep. 2026 **Multimodal Human Behavior Recognition Project**
Core Member. Developed multimodal fusion algorithms to improve human action and facial-expression recognition; led technical documentation and project reporting.

Nov. 2024 – Jun. 2026 **Social Network Group Analysis Project**
Contributor. Reproduced and tested algorithms for group-level analysis in social networks and supported Third-party testing.

Feb. 2024 – May 2024 **Luopan Complex Network Computing Platform**
Contributor. Contributed to algorithm reproduction, dataset collection, and internal testing for a complex-network computing platform.

Nov. 2024 – Jan. 2025 **Data-Driven Talent Evaluation Project**
Contributor. Supported data collection and analysis, technical documentation, and project reporting for data-driven talent assessment.

Funding & Grants

Jul. 2025 – Jul. 2026 **Student Innovation Funding Program of the School of Cyber Science and Technology (Phase III)**
Project Lead and Grant Recipient. Funded by the China Internet Development Foundation and Topsec Technologies Group Inc. **(RMB 60,000 / USD 9,000).**

Awards & Honors

2023–2025 **Graduate Academic Scholarships**, USTC: Master's—First Class (2024), Second Class (2023); Doctoral—First Class (2026), Second Class (2025).

2026 **Second Prize**, China Youth Science and Technology Innovation Challenge, Next-Generation Information Technology (Student Track).

Industry Experience

Dec. 2023 - May 2024 **Algorithm Engineer Intern**, Data Space Research Institute (idata), Hefei.

Skills

Languages	Mandarin Chinese (native); English (fluent).
Programming	Python, Julia, Bash.
Machine Learning & LLMs	PyTorch, vLLM, local LLM/VLM deployment, parameter-efficient fine-tuning (PEFT/LoRA).
Agents & AI Tools	Codex, Claude Code, OpenCode, E2B.
Networking & Systems	Mininet, Linux, Docker, Git.
Scientific Computing & Data	NetworkX, Qdrant vector database.