

Guo Lu

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Research Interests

Video coding, multimedia processing, and efficient multimodal large language models.

Academic Appointments

- Tenure-track Associate Professor and Ph.D. Supervisor, Department of Electronic Engineering, Shanghai Jiao Tong University.
- Assistant Professor, Beijing Institute of Technology, 2020–2022.
- Visiting Researcher, University of Sydney, September 2017–March 2019.

Education

- Ph.D. in Electronic Engineering, Shanghai Jiao Tong University, 2020.

Honors and Awards

- ICML Gold Reviewer Award, 2026.
- Stanford/Elsevier World's Top 2% Scientists, 2025.
- IEEE WCSP Best Paper Award, 2025.
- VCIP Best Student Paper Runner-up, 2024.
- China Association for Science and Technology Youth Talent Support Program, 2024.
- IEEE CASS Visual Signal Processing and Communications Rising Star, 2023.
- Excellent Doctoral Dissertation Award of the China Society of Image and Graphics, 2022.
- Top Creativity Award in the IEEE VCIP Grand Challenge "Practical End-to-end Image Compression," 2022.
- Excellent Doctoral Dissertation Award of Shanghai Jiao Tong University, 2020.

Selected Research Projects

- National Natural Science Foundation of China, Young Scientists Fund, "Adaptive Intelligent Video Compression Coding Algorithms," Principal Investigator, January 2022–December 2024.
- National Natural Science Foundation of China, General Program, "Key Technologies for Immersive Video Coding Based on Neural Radiance Fields," Principal Investigator, January 2025–December 2028.
- National Natural Science Foundation of China, Key Program, "Theory and Methods of Screen Mixed-Content Coding Based on Multi-Agent Collaborative Learning," Lead of Participating Institution, January 2024–December 2027.
- Ministry of Science and Technology of China, National Key R&D Young Scientists Project, "Intent-Driven Intelligent Simplified Coding and Transmission Mechanisms," Lead of Participating Institution.
- Huawei Technologies, University–Industry Collaboration Project, "Video Coding Algorithm Research," Principal Investigator, November 2022–November 2023.

Selected Publications

2026

Journal Articles

1. Diff-VF: Training-free High-quality Long Video Generation via Diffusion Model
Haoning Yang, Xinyuan Chen, Yaohui Wang, [Guo Lu](#). *ACM TOMM*, 2026.
2. Large language model for lossless image compression with visual prompts
Junhao Du, Chuqin Zhou, Yunuo Chen, [Guo Lu](#). *IEEE T-CSVT*, 2026.
3. Generative Video Communications: Concepts, Key Technologies, and Future Research Trends
Wenjun Zhang, [Guo Lu](#), Zhiyong Chen, Geoffrey Ye Li. *Engineering*, 2026.
4. SMC++: Masked Learning of Unsupervised Video Semantic Compression
Yuan Tian, Xiaoyue Ling, Cong Geng, Qiang Hu, [Guo Lu](#), Guangtao Zhai. *IEEE TPAMI*, 2026.

Conference Papers

5. Next-frame decoding for ultra-low-bitrate image compression with video diffusion priors
Yunuo Chen, Chuqin Zhou, Jiangchuan Li, Xiaoyue Ling, Bing He, Jincheng Dai, Li Song, [Guo Lu](#). *ECCV*, 2026.
6. Every Packet Counts: Dispersing Information for Loss-Resilient Learned Image Compression
Yuhang Wei, Chuqin Zhou, Yibo Shi, Jing Wang, [Guo Lu](#). *ACM MM*, 2026.
7. Unified spatiotemporal token compression for video-llms at ultra-low retention
Junhao Du, Jialong Xue, Anqi Li, Jincheng Dai, [Guo Lu](#). *CVPR*, 2026.
8. Adaptive Learned Image Compression with Graph Neural Networks
Yunuo Chen, Bing He, Zezheng Lyu, Hongwei Hu, Qunshan Gu, Yuan Tian, [Guo Lu](#). *CVPR*, 2026.
9. Content-aware mamba for learned image compression
Yunuo Chen, Zezheng Lyu, Bing He, Hongwei Hu, Qi Wang, Yuan Tian, Li Song, Wenjun Zhang, [Guo Lu](#). *ICLR*, 2026.
10. Towards Trustworthy Multimodal Moderation via Policy-Aligned Reasoning and Hierarchical Labeling
Anqi Li, Wenwei Jin, Jintao Tong, Pengda Qin, Jiawei Li, [Guo Lu](#). *KDD*, 2026.

2025

Journal Articles

11. Implicit-Explicit Integrated Representations for Multi-View Video Compression
Chen Zhu, Guo Lu, Bing He, Rong Xie, Li Song. *IEEE TIP*, 2025.

12. VARFVV: View-Adaptive Real-Time Interactive Free-View Video Streaming With Edge Computing
Qiang Hu, Qihan He, Houqiang Zhong, Guo Lu, Xiaoyun Zhang, Guangtao Zhai, Yanfeng Wang. *IEEE JSAC*, 2025.

Conference Papers

13. Knowledge Distillation for Learned Image Compression
Yunuo Chen, Zezheng Lyu, Bing He, Ning Cao, Gang Chen, Guo Lu, Wenjun Zhang. *ICCV*, 2025.

14. Controllable Distortion-Perception Tradeoff Through Latent Diffusion for Neural Image Compression
Chuqin Zhou, Guo Lu, Jiangchuan Li, Xiangyu Chen, Zhengxue Cheng, Li Song, Wenjun Zhang. *AAAI*, 2025.

15. Image Quality Assessment: From Human to Machine Preference
Chunyi Li, Yuan Tian, Xiaoyue Ling, Zicheng Zhang, ..., Guo Lu, Weisi Lin, Guangtao Zhai. *CVPR*, 2025.

2024

Journal Articles

16. A Coding Framework and Benchmark Towards Low-Bitrate Video Understanding
Yuan Tian, Guo Lu, Yichao Yan, Guangtao Zhai, Li Chen, Zhiyong Gao. *IEEE TPAMI*, 2024.

17. Preprocessing Enhanced Image Compression for Machine Vision
Guo Lu, Xingtong Ge, Tianxiong Zhong, Qiang Hu, Jing Geng. *IEEE T-CSVT*, 2024.

Conference Papers

18. Neural rate control for learned video compression
Yiwei Zhang, Guo Lu, Yunuo Chen, Shen Wang, Yibo Shi, Jing Wang, Li Song. *ICLR*, 2024.

19. Rate-aware Compression for NeRF-based Volumetric Video
Zhiyu Zhang, Guo Lu, Huanxiong Liang, Zhengxue Cheng, Anni Tang, Li Song. *ACM MM*, 2024.

2021

Conference Papers

20. FVC: A New Framework towards Deep Video Compression in Feature Space
Zhihao Hu, Guo Lu, Dong Xu. *CVPR*, 2021.

2019

Conference Papers

21. DVC: An End-To-End Deep Video Compression Framework
Guo Lu, Wanli Ouyang, Dong Xu, Xiaoyun Zhang, Chunlei Cai, Zhiyong Gao. *CVPR*, 2019.

Professional Services

- Associate Editor, IEEE Transactions on Circuits and Systems for Video Technology, 2025.
- Guest Editor, IEEE JETCAS Special Issue on "When Large Models Meet Video Coding: Synergies, Systems, and Hardware Challenges," 2026.
- IEEE VSPC-TC Member, 2025.
- Area Chair, ICLR, 2025 and 2026.
- Area Chair, NeurIPS, 2025 and 2026.
- Senior Program Committee Member, AAAI, 2021 and 2026.
- Guest Editor, IJCV Special Issue on Video Understanding and Video Compression, 2021.
- Guest Editor, IEEE T-CSVT Special Issue on Learned Visual Data Compression for Both Human and Machine, 2022.

Teaching

- Video Coding and Communication, undergraduate course, 2022–present.
- Multimedia Networking, graduate course, 2022–present.

Tutorials Workshops and Challenges

- Organizer, Challenge on Ultra-Low Bitrate Image Compression, ECCV 2026.
- Organizer, Ultra-Low Bitrate Video Compression Challenge, VCIP 2025.
- Tutorial Organizer, ACM MM Tutorial on Deep Learning for Visual Data Compression, 2021.
- Tutorial Organizer, CVPR Tutorial on Learning for Visual Data Compression, 2021.
- Tutorial Organizer, VCIP Tutorial on Learned Image and Video Compression with Deep Neural Networks, 2020.
- Tutorial Organizer, IEEE AVSS Tutorial on Deep Learning for Video Compression and Understanding, Taipei, 2019.