

# Haochen LIANG

## EDUCATION

**The University of Tokyo**

*Ph.D. in Information and Communication Engineering*

**Tokyo, Japan**

*Oct.2025-Sep.2028 (Expected)*

- **Research Focus:** *Multimedia, LLM, Federated Learning, Machine Learning, IoT, Blockchain, etc.*

**Beijing Institute of Technology**

*M.Eng. in Electronic Information*

**Beijing, China**

*Sep.2022-Jun.2025*

**Jilin University**

*B.Eng. in Mechanical Engineering & B.Econ. (Dual Degree)*

**Changchun, China**

*Sep.2018-Jun.2022*

## RESEARCH EXPERIENCES

**Great Bay University**

*Research Assitant*

**Dongguan, China**

*Jul.2024-Sep.2025*

**The University of Trento**

*Visiting Student*

**Trento, Italy**

*Apr.2026-Jul.2026*

## PUBLICATIONS

- **H. Liang**, J. Zhang and H. Ochiai, “FedTaste: Topology-Aware Structural Transfer for Multimodal Federated Learning with Missing Modalities” *Proceedings of the 34st ACM international conference on multimedia (ACM MM’26)*. (Accepted)
- **H. Liang**, X. Su, et al, “MViR: Multi-View Visual-Semantic Representation for Fake News Detection.” *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP’26)*.
- **H. Liang**, J. Chen, et al, “LENS: End-to-End LLM-Enhanced Smart Contract Fuzzing for Blockchain Security” *2026 IEEE 32th International Conference on Parallel and Distributed Systems (ICPADS)*. (Accepted)
- K. Gai, **H. Liang**, J. Yu, L. Zhu, D. Niyato, “LLAMA: Multi-Feedback Smart Contract Fuzzing Framework with LLM-Guided Seed Generation.” *IEEE Transactions on Information Forensics and Security*. (supervisor as first author.)
- **H. Liang**, H. Ochiai, “Dual-Level Prototype Alignment for Heterogeneous Multimodal Federated Learning.” *IEEE Global Conference on Consumer Electronics (GCCE’26)*. (Accepted)
- **H. Liang**, H. Ochiai, “Blockchain-Based Trustworthy Multimodal Federated Learning.” *IEEE Global Conference on Consumer Electronics (GCCE’26)*. (Accepted)
- **H. Liang**, Y. Guo, et al, “KDTSS: A Blockchain-Based Scheme for Knowledge Data Traceability and Secure Sharing.” *International Conference on Knowledge Science, Engineering and Management (KSEM’24)*.
- H. Dong†, **H. Liang**†, et al, “DICES: Diffusion-Based Contrastive Learning with Knowledge Graphs for Recommendation.” *International Conference on Knowledge Science, Engineering and Management (KSEM’24)*.
- Y. Guo, **H. Liang**\*, et al. Zk-SNARKs-Based Anonymous Payment Channel in Blockchain. *Blockchains* 2(1):20–39, 2024. (Corresponding author)
- **H. Liang**, Y. Guo, and K. Gai, “A Blockchain-Based Hierarchical Storage Method for Supply Chain Data.” *International Conference on Smart Cloud (SmartCloud’23)*.
- C. Chen, S. Ye, **H. Liang**, et al, “FELT: Communication-Efficient and Private Federated Learning for Long-Tailed IoT Data.” *IEEE Internet of Things Journal* (2026).

- J. Zhang, Q. Ye, H. Zhou, **H. Liang**, et al, “MAVIS: Multi-Agent Video Retrieval via Structured Video Understanding” *The 64th Annual Meeting of the Association for Computational Linguistics (ACL’26)*.
- X. Su, Z. Yu, Y. Cui, A. Liu, X. Lin, Y. Wang, **H. Liang**, et al, “Dynamic Analysis and Adaptive Discriminator for Fake News Detection.” *Proceedings of the 33rd ACM international conference on multimedia (ACM MM’25)*.
- Z. Wang, Z. Yu, Y. Zhu, B. Zhao, **H. Liang**, et al, “AffectAgent: Collaborative Multi-Agent Reasoning for Retrieval-Augmented Multimodal Emotion Recognition” *Proceedings of the 34th ACM international conference on multimedia (ACM MM’26)*. (Accepted)
- **H. Liang**, C. Chen, J. Yang, H. Ma, J. Cao and Z. Yu, “Selective Transfer of Generative Priors for Multimodal Federated Learning,” *International Conference on Learning Representations (ICLR 2027)*. (Under review)
- J. Zhang, **H. Liang**, et al, “Empowering Large Vision-Language Models to Bridge Open-Set Domain Gaps in Video Retrieval” *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI’27)*. (Under review)
- J. Zhang, Q. Ye, **H. Liang**, et al, “Semantic Manifold Completion for Partially Relevant Video Retrieval” *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI’27)*. (Under review)
- **H. Liang**, H. Ochiai, “FedXRef: Learning Cross-Modal Prototype References for Heterogeneous Multimodal Federated Learning,” *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2027)*. (Under review)
- C. Chen, Q. Li, J. Gu, X. Lin, Y. Wang, J. Zhu, K. Wang, **H. Liang**, et al., “Redistributing the Benefits of Collaborative Critical-Care AI Across Data-Unequal Hospital Sites.” *Nature Communications*. (Under Review)

## RESEARCH PROGRAMS

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| <b>1. Research on Cross-Modal Federated Learning (Team Leader)</b>                                                                                                                                           | Oct.2025-Now      |
| Addressed the challenges of missing modalities and modality asymmetry in cross-modal federated learning by leveraging diffusion models and transfer learning (Accepted by ACM MM’26 and GCCE’26).            |                   |
| <b>2. Research on Multimodal Fake News Detection (Team Leader)</b>                                                                                                                                           | May.2024-Now      |
| Proposed multimodal fake news detection methods based on multi-view representation and LLM, achieving excellent performance on Weibo and GossipCop datasets (Published in ACM MM’25 and ICASSP’26).          |                   |
| <b>3. Research on Smart Contract Vulnerability Detection (Team Leader)</b>                                                                                                                                   | Sep.2022-May.2024 |
| Designed an LLM-driven evolutionary fuzzer for blockchain smart contracts, achieving exceptional performance in both vulnerability detection efficiency and quantity (Published in IEEE TIFS and ICPADS’26). |                   |

## REVIEWER

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Journal: IEEE Transactions on Information Forensics and Security, Pattern Recognition  
 Conference: ICASSP 2025, IJCB 2025, KSEM 2024, BigDataSecurity 2024, Smartcloud 2023, SmartCom 2023

## HONORS & AWARDS

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|--------------------------------------------------------------------------|-----------|
| IEEE Computer Society WEIGD Student Support Fund                         | 2026      |
| UTokyo Self-Directed and Integrated Project Research Funding             | 2025–2026 |
| Outstanding Graduate, Beijing Institute of Technology                    | Jun. 2025 |
| The Student Innovation Funding Program                                   | 2024–2025 |
| Graduate Academic Scholarship, Beijing Institute of Technology           | 2022–2024 |
| Chinese Mathematics Competition for College Students (CMC) (First Prize) | 2022      |

## RELEVANT SKILLS

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**Programming & Software:** Python, C, C++, Go, Matlab, Origin, Excel, SQL Server  
**Language:** English, Chinese, Japanese