Md Monjurul Karim

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Homepage

I am a researcher working at the intersection of artificial intelligence, distributed computing, and networked systems, with a focus on building trustworthy, efficient, and scalable intelligent infrastructures.

Interests: Agentic and decentralized AI, blockchain and Web3, Internet of Things (IoT), distributed systems, cloud and edge computing.

Professional Experience

Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences Shenzhen, China
Postdoctoral Research Fellow *Nov. 2023 – Current*

- Independent and collaborative research on decentralized AI, autonomous AI agents, AI governance, blockchain systems, edge computing, and trustworthy distributed intelligence.
- Project design, prototype development, system implementation, experimental validation, and high-quality academic publication.
- Interdisciplinary research activities in distributed intelligent systems, trustworthy AI, and networked computing infrastructures.

Southern University of Science and Technology Shenzhen, China
Research and Teaching Assistant *Jul. 2021 – Sep. 2023*

- Project *Distributed Resource Management for the Integrated Blockchain-Mobile Edge Computing System*.
- Academic research and teaching activities.

Ericsson Information Communication Ltd. Xi'an, China
Network Engineer (Internship) *Feb. 2015 – Mar. 2015*

- Radio Access Network design and optimization.

Education

Beijing Institute of Technology Beijing, China
Ph.D. in Computer Science and Technology *Sep. 2016 – Jun. 2023*
Thesis: *Research on QoS-aware Software-Defined Information-Centric Networking Solutions*
Advisor: Zhu Liehuang

Northwestern Polytechnical University Xi'an, China
M.Eng. in Computer Science and Technology *Sep. 2012 – Mar. 2015*
Thesis: *Source Code-based Buffer Overflow Detection*
Advisor: Yao Ye

Northwestern Polytechnical University Xi'an, China
B.Eng. in Computer Science and Technology *Sep. 2008 – Jul. 2012*
Thesis: *Filtering packet from a sniffer type application on the IPv6 based networking environment*
Advisor: Jiang Xuefeng

Projects

- **Role:** Co-PI; *AI-Enhanced Explainable Risk Intelligence Platform for Stablecoin Compliance*; Hangzhou StablePay Technology Co., Ltd.; **Amount:** RMB 120,000.
- **Role:** Technical Lead; *IT Consulting Services for JD Technology's Stablecoin Business*; JD Technology Co., Ltd.; **Amount:** RMB 350,000.

Patents

- *Task Processing Method, Apparatus, System, and Electronic Device*. Chinese invention patent, Application No. CN202510684562.0, 2025.

Selected Publications

Complete list: Google Scholar · H-Index: 11 · i10-Index: 12 · Citations: 1140+

1. **M. M. Karim**, Q. Qu, K. Sharif, M. Muzammal, and S. Biswas, "MTC-SBC: Reputation-based service provision for multi-tier computing-enabled sharded blockchain," *Future Generation Computer Systems (**FGCS**)*, vol. 182, p. 108 499, Sep. 1, 2026.
2. **M. M. Karim**, S. Khan, Q. Qu, M. Muzammal, K. Sharif, and S. Biswas, "From trust to augmentation: A comprehensive survey on synergistic integration of decentralized and generative intelligence," *Computer Science Review (**COSREV**)*, vol. 61, p. 100 936, Aug. 1, 2026.
3. D. H. Van, **M. M. Karim**, and Q. Qu, "Just-in-time historical state reconstruction for low-latency financial trading with large language models," *AI*, vol. 7, no. 4, p. 117, Apr. 2026.
4. **M. M. Karim**, D. Hoang Van, and Q. Qu, "Securing decentralized finance: A comprehensive survey of maximal extractable value and its countermeasures," *Blockchain: Research and Applications (**BCRA**)*, p. 100 455, Feb. 2, 2026.

5. A. Bilal, K. Sharif, L. Zhu, F. Li, C. Xu, and **M. M. Karim**, "HySLA: Hybrid DPoS-DAG model for secure, scalable, low-latency access control in Internet of Vehicles," *IEEE Internet of Things Journal (**IOTJ**)*, pp. 1–1, 2026.
6. A. Bilal, K. Sharif, L. Zhu, F. Li, C. Xu, and **M. M. Karim**, "Evaluation to integration: Hybrid feature selection framework with ensemble machine learning for intrusion detection," *IEEE Transactions on Dependable and Secure Computing (**TDSC**)*, pp. 1–16, 2026.
7. S. Khan, **M. M. Karim**, Q. Qu, and M. Muzammal, "Dynamic client selector: A double deep q-learning framework for efficient federated learning," in *Proceedings of the IEEE International Conference on Pervasive Computing and Communications (PerCom)*, Pisa, Italy, 2026.
8. D. H. Van, **M. M. Karim**, and Q. Qu, "Probabilistic optimization of top-k aggregation in distributed environments," in *Web and Big Data (APWeb-WAIM 2025)*, Springer Nature, 2026, pp. 566–580.
9. **M. M. Karim**, Q. Qu, Y. Cai, T. Liu, and X. Meng, "Bitcoin reimagined: A comprehensive study of ordinals and inscriptions protocols for Web3 asset innovation," *Blockchain: Research and Applications (**BCRA**)*, p. 100 379, Sep. 8, 2025.
10. **M. M. Karim**, S. Khan, D. H. Van, X. Liu, C. Wang, and Q. Qu, "Transforming data annotation with AI agents: A review of architectures, reasoning, applications, and impact," *Future Internet*, vol. 17, no. 8, p. 353, Aug. 2025.
11. **M. M. Karim**, D. H. Van, S. Khan, Q. Qu, and Y. Kholodov, "AI agents meet blockchain: A survey on secure and scalable collaboration for multi-agents," *Future Internet*, vol. 17, no. 2, p. 57, Feb. 2025.
12. **M. M. Karim**, K. Sharif, S. Biswas, Z. Latif, Q. Qu, and F. Li, "CIC-SIoT: Clean-slate information-centric software-defined content discovery and distribution for Internet of Things," *IEEE Internet of Things Journal (**IOTJ**)*, vol. 11, no. 22, pp. 37 140–37 153, Nov. 2024.
13. L. Zhu, **M. M. Karim**, K. Sharif, C. Xu, and F. Li, "Traffic flow optimization for UAVs in multi-layer information-centric software-defined FANET," *IEEE Transactions on Vehicular Technology (**TVT**)*, vol. 72, no. 2, pp. 2453–2467, Feb. 2023.
14. M. W. A. Ashraf, C. Huang, A. Raza, K. Sharif, **M. M. Karim**, and S. Huang, "Forwarding and caching in video streaming over ICSDN: A clean-slate publish-subscribe approach," *Computer Networks (**ComNet**)*, vol. 219, p. 109 433, Dec. 24, 2022.
15. W. Ni, S. Zhu, **M. M. Karim**, A. Asheralieva, J. Kang, Z. Xiong, and C. Maple, "Lagrange coded federated learning (L-CoFL) model for Internet of Vehicles," in *2022 IEEE 42nd International Conference on Distributed Computing Systems (**ICDCS**)*, Jul. 2022, pp. 864–872.
16. S. Zhu, A. Asheralieva, **M. M. Karim**, D. Niyato, and K. A. Raza, "Secure federated learning based on coded distributed computing," in *2021 IEEE Globecom Workshops (**GC Wkshps**)*, Dec. 2021, pp. 1–7.
17. Z. Latif, K. Sharif, F. Li, **M. M. Karim**, S. Biswas, M. Shahzad, and S. P. Mohanty, "DOLPHIN: Dynamically optimized and load balanced path for inter-domain SDN communication," *IEEE Transactions on Network and Service Management (**TNSM**)*, vol. 18, no. 1, pp. 331–346, Mar. 2021.
18. L. Zhu, **M. M. Karim**, K. Sharif, C. Xu, F. Li, X. Du, and M. Guizani, "SDN controllers: A comprehensive analysis and performance evaluation study," *ACM Computing Surveys (**CSUR**)*, vol. 53, no. 6, 133:1–133:40, Dec. 6, 2020.
19. I. Alam, K. Sharif, F. Li, Z. Latif, **M. M. Karim**, S. Biswas, B. Nour, and Y. Wang, "A survey of network virtualization techniques for Internet of Things using SDN and NFV," *ACM Computing Surveys (**CSUR**)*, vol. 53, no. 2, 35:1–35:40, Apr. 16, 2020.
20. Z. Latif, K. Sharif, F. Li, **M. M. Karim**, S. Biswas, and Y. Wang, "A comprehensive survey of interface protocols for software defined networks," *Journal of Network and Computer Applications (**JNCA**)*, vol. 156, p. 102 563, Apr. 15, 2020.

Academic Service

Conference Organization

- Award Chair, IEEE International Conference on Big Data Science and Engineering
- Technical Program Committee Member, International Conference on Communication Systems and Networks

Peer Review

- All the leading journals and conferences of IEEE, ACM, Elsevier, and Springer.