

Md Monjurul Karim

Ph.D. in Computer Science and Technology

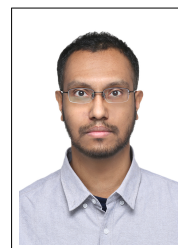
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Date of Birth: March 08, 1988



Education

- Sep 2016 - June 2023 **Ph.D. in Computer Science and Technology**, *School of Computer Science, Beijing Institute of Technology (BIT), Beijing, China.*
- Average: 90%
 - Advisor: Prof. Zhu Liehuang
 - **Thesis: Research on QoS-aware Software-Defined Information-Centric Networking Solutions**
- Sep 2012 - Mar 2015 **M.Eng. in Computer Science and Technology**, *School of Computer Science, Northwestern Polytechnical University (NWP), Xi'an, China.*
- Average: 77.75%
 - Advisor: Prof. Yao Ye
 - **Thesis: Source Code-based Buffer Overflow Detection**
- Sep 2008 - Jul 2012 **B.Eng. in Computer Science and Technology**, *School of Computer Science, Northwestern Polytechnical University (NWP), Xi'an, China.*
- Average: 76.96%
 - Advisor: Prof. Jiang Xuefeng
 - **Thesis: Packet Filtering Technique in IPv6 Networking Environment**
- Sep 2007 - June 2008 **Comprehensive Chinese Language Program**, *School of International Education, Tianjin University (TJU), Tianjin, China.*
- Organized by **Chinese Scholarship Council (CSC)**

Employment

- Jul. 2021 - Sep. 2023 **Research and Teaching Assistant**, *Research Institute of Trustworthy Autonomous Systems, Southern University of Science and Technology (SUSTech), Shenzhen, China.*
(Full-time)
- **Project: Distributed Resource Management for the Integrated Blockchain-Mobile Edge Computing System**
 - Assisting in the preparation of scientific journal and conference manuscripts
 - Peer reviewing scientific journals and conferences
 - Participating in national project preparation and development
 - Assisting in the delivery of educational materials, including lectures, assignments, and laboratory exercises
- Jul. 2015 - Jul. 2016 **Network Engineer**, *SRK ShowTime, Dhaka, Bangladesh.*
(Full-time)
- Troubleshooting malfunctions of the operating system, networking hardware, and security systems
 - Supervising the administration of systems and servers to ensure the availability of services
 - Managing assigned projects and program components to deliver services
 - Responding to inquiries from administrators, service providers, site personnel, and outside vendors

- Feb. 2015 - Mar. 2015 **Network Engineer, *Ericsson Information Communication Ltd.*, Xi'an, China.**
(Internship)
- **Project: Radio Access Network Design and Optimization**
 - Supported planning and coordinating activities with customers Worldwide
 - Performed integration and network rollout activities of WCDMA RAN nodes
- Jun. 2011 - Jul. 2011 **Software Developer, *Insigma (浙大网新)*, Hangzhou, China.**
(Internship)
- **Project: Integrated Hospital Patient Data Management Solution**
 - Developed C++ and MFC Application to maintain medical information (e.g., personal details, diagnosis reports, billing)

Research Interests

Software-Defined Networking; Edge Computing; Blockchain; Information-Centric Networking; Next-Generation Networking.

Publications ([i DBLP](#)) ([i Google Scholar](#)) H-Index:7

- TVT 2023 **Traffic Flow Optimization for UAVs in Multi-Layer Information-Centric Software-Defined FANET.**
JCR-Q1, IF-6.8
- L. Zhu, [M.M. Karim](#)¹, K. Sharif, C. Xu, and F. Li
IEEE Transactions on Vehicular Technology, Vol. 72, No. 2, PP. 2453-2467, Feb. 2023.
[i](#) [DOI](#)
- ComNet 2022 **Forwarding and caching in video streaming over ICSDN: A clean-slate publish-subscribe approach.**
CCF-B, IF-5.6
- M.W.A. Ashraf, C. Huang, A. Raza, K. Sharif, [M.M. Karim](#), and S. Huang
Elsevier Computer Networks, Vol. 219, P. 109433, December 2022. [i](#) [DOI](#)
- ICDCS 2022 **Lagrange Coded Federated Learning (L-CoFL) Model for Internet of Vehicles.**
CCF-B
- W. Ni, S. Zhu, [M.M. Karim](#), A. Asheralieva, J. Kang, Z. Xiong, and C. Maple
Proceedings of IEEE 42nd International Conference on Distributed Computing Systems, 2022. [i](#) [DOI](#)
- ICC Workshops 2022 **User-Centric Blockchain for Industry 5.0 Applications.**
Core-B
- H. Yang, A. Asheralieva, J. Zhang, [M.M. Karim](#), D. Niyato, and K.A. Raza
Proceedings of IEEE International Conference on Communications Workshop on Scalable, Secure and Intelligent Blockchain for Future Networking and Communications, 2022. [i](#) [DOI](#)
- GC Wkshps 2021 **Secure Federated Learning Based on Coded Distributed Computing.**
Core-B
- S. Zhu, A. Asheralieva, [M.M. Karim](#), D. Niyato, and K.A. Raza
Proceedings of IEEE Global Communications Conference Workshop on Robust, Low-Latency and Efficient Federated Learning for 6G-Enabled Internet of Things, 2021.
[i](#) [DOI](#)
- GC Wkshps 2021 **Throughput-Efficient Blockchain for Internet-of-Vehicles.**
Core-B
- W. Ni, A. Asheralieva, C. Maple, [M.M. Karim](#), D. Niyato, and Q. Yan
Proceedings of IEEE Global Communications Conference Workshop on Scalable, Secure and Intelligent Blockchain for Future Networking and Communications, 2021. [i](#) [DOI](#)
- ISNCC 2021 **A Novel Forwarding and Caching Scheme for Software-Defined Information-Centric Networks.**
- K.A. Raza, A. Asheralieva, [M.M. Karim](#), K. Sharif, M. Gheisari, and S. Khan
Proceedings of IEEE International Symposium on Networks, Computers and Communications, 2021. [i](#) [DOI](#)

¹The supervisor is listed as the first author, and the applicant is listed as the second. This arrangement complies with the requirements for obtaining a Ph.D. degree from Beijing Institute of Technology.

- TNSM 2020 CCF-C, IF-5.3 **DOLPHIN: Dynamically Optimized and Load Balanced PatH for INter-domain SDN Communication.**
Z. Latif, K. Sharif, F. Li, M.M. Karim, S. Biswas, M. Shahzad, and S.P. Mohanty
IEEE Transactions on Network and Service Management, Vol. 18, No. 1, PP. 331-346, March 2021. [DOI](#)
- CSUR 2020 JCR-Q1, IF-16.6 **SDN Controllers: A Comprehensive Analysis and Performance Evaluation Study.**
L. Zhu, M.M. Karim¹, K. Sharif, Chang Xu, F. Li, X. Du, and M. Guizani
ACM Computing Surveys, Vol. 53, Issue 6, Dec. 2020. [DOI](#) [Preprint](#)
- CSUR 2020 JCR-Q1, IF-16.6 **A Survey of Network Virtualization Techniques for Internet of Things Using SDN and NFV.**
I. Alam, K. Sharif, F. Li, Z. Latif, M.M. Karim, S. Biswas, B. Nour, and Yu Wang
ACM Computing Surveys, Vol. 53, Issue 2, April 2020. [DOI](#)
- JNCA 2020 CCF-C, IF-8.7 **A Comprehensive Survey of Interface Protocols for Software Defined Networks.**
Z. Latif, K. Sharif, F. Li, M.M. Karim, S. Biswas, and Y. Wang
Journal of Network and Computer Applications, Vol. 156, P. 102563, Apr. 2020. [DOI](#) [Preprint](#)
- WASA 2018 CCF-C **Quadrant-Based Weighted Centroid Algorithm for Localization in Underground Mines.**
N. Tahir, M.M. Karim, K. Sharif, F. Li, and N. Ahmed
Proceedings of International Conference on Wireless Algorithms, Systems, and Applications, 2018. [DOI](#)

Manuscript Under Progress/Review

M.M. Karim et al., "CICSIoT: Content Discovery and Distribution in Clean-slate Information-Centric Softwarized Internet-of-Things".

M.M. Karim et al., "Mobility-aware Caching and Slicing Optimization for Information-Centric Software-Defined Internet of Vehicles".

M.M. Karim et al., "Reputation-based Service Provisioning for Blockchain-enabled Multi-tier Computing Networks".

Academic Services

Peer Reviewer **IEEE, Elsevier, ACM Journals, Magazines and Conference Proceedings.**

Achievements

- Offer for "Network Technology Engineer" from **Huawei Tech. Bangladesh Ltd.**, 2021
- Full-Funded **Chinese Government Scholarship**, Dhaka (Bangladesh), 2016
- **Band 7.0** in IELTS Academic and General Modules, Dhaka (Bangladesh), 2015
- Offer for "Network Engineer" from **Ericsson**, Xi'an (China), 2015
- **Cisco CCNP** in Routing and Switching, Xi'an (China), 2014
- **2nd Prize**, Cyber Security Alliance Innovation Competition, Beijing (China), 2014
- **Cisco CCNA** in Security, Xi'an (China), 2013
- **Cisco CCNA** in Routing and Switching, Dhaka (Bangladesh), 2012
- **University Scholarship**, Northwestern Polytechnical University, Xi'an (China), 2012
- Full-Funded **Chinese Government Scholarship**, Dhaka (Bangladesh), 2007

Academic Projects

- Sep. 2016 - Jun. 2021 **Beijing Institute of Technology (BIT), Beijing.**
- Traffic Flow Optimization for Multi-Layer Software-Defined Information-Centric UAV-assisted Flying Ad-hoc Network (FANET)
 - Clean-slate Software-Defined Information-Centric Solution for Internet of Things (IoT) Network
 - Software-Defined Information-Centric Mobility and Caching Solution for 5G Vehicular Ad-hoc Networks (VANET)
 - Qualitative and Quantitative Evaluation of SDN Controllers
- Sep. 2012 - Jan. 2015 **Northwestern Polytechnical University (NWPU), Xi'an.**
- Developed a static analysis tool employing pattern-matching techniques to detect errors, perform rule checks, and identify vulnerabilities in C and C++ source code
 - Designed a C source code scanner based on lexical and syntax analysis, using open-source tools such as LEX and YACC
 - Conducted comprehensive analysis of Windows buffer overflow exploitation techniques using Windows XP, Metasploit, and OllyDbg for stack and heap-based vulnerabilities
- Sep. 2008 - Jun. 2012 **Northwestern Polytechnical University (NWPU), Xi'an.**
- Implemented a Secure Wired Local Area Network based on IEEE 802.1X, demonstrating knowledge of the OSI reference model, network layout, functions, and the elements of TCP/IP
 - Organized a method for leveraging an open-source, customizable Cloud Operating System, enabling its accessibility throughout the entire campus
 - Created a basic Peer-to-Peer (P2P) chat application, leveraging the IPv6 protocol for client-server communication

Technical Skills

Programming	Python and C++
Simulation	NS3, Matlab, Mininet, GNS3
DevOps	Docker, Git, Make, Kubernetes
Miscellaneous	Tex, Markdown, CSS, HTML, JSON, XML

Language

Expert	English
Advanced	Mandarin Chinese
Intermediate	Hindi-Urdu
Native	Bengali

References

- Ph.D. Supervisor **Prof. Liehuang Zhu**, *Distinguished Professor*, School of Cyberspace Science and Technology, Beijing Institute of Technology, Beijing, ✉ liehuangz@bit.edu.cn [📄 homepage](#).
- Ph.D. Co-Supervisor **Prof. Kashif Sharif**, *Associate Professor (Research)*, School of Computer Science, Beijing Institute of Technology, Beijing, ✉ kashif.sharif@ieee.org [📄 homepage](#).
- Prof. Chang Xu**, *Associate Professor*, School of Cyberspace Science and Technology, Beijing Institute of Technology, Beijing, ✉ xuchang@bit.edu.cn [📄 homepage](#).