

HAMZA IBRAHIM

Ph.D. Student, IT Convergence Engineering

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Department of IT Convergence Engineering, Kumoh National Institute of Technology, Gumi, Gyeongbuk, South Korea

Updated: 8월 2026

RESEARCH INTERESTS

Real-Time Systems, Blockchain Systems, Intelligent Systems, Industrial IoT Security, Machine Learning and Artificial Intelligence for Intrusion Detection and Prevention.

EDUCATION

- | | |
|-----------------------|---|
| 2025 - Present | Ph.D. Student, IT Convergence Engineering
Kumoh National Institute of Technology, Gumi, Gyeongbuk, South Korea
Networked Systems Lab (NSL) |
| 2018 - 2023 | B.Tech, Computer Science Education
Abubakar Tafawa Balewa University, Bauchi, Nigeria |
| 2016 - 2017 | National Diploma, Computer Science
Abubakar Tatari Ali Polytechnic, Bauchi, Nigeria |

APPOINTMENTS AND EXPERIENCE

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| Jun 2025 - Present | Intern
Zee Tech Foundation, Bauchi, Nigeria
Information Technology Infrastructure and Scholarly Research. |
| Aug 2024 | Researcher
Innovations for Poverty Action, Bauchi State, Nigeria |
| Dec 2023 - Aug 2024 | Research Assistant
Child Health and Mortality Prevention Surveillance (CHAMPS), College of Medical Science
ATBU Bauchi
Data collection, mapping, listing, and baseline studies. |
| Jul 2021 - Jan 2022 | Teaching Assistant
FGGC Bauchi, Bauchi State, Nigeria
Supported classroom teaching and computer practical sessions. |
| Oct 2016 - Jan 2017 | Industrial Placement Student
Bauchi Information and Communication Technology, Bauchi State, Nigeria
Supported information and communication technology tasks during industrial placement. |

AWARDS AND HONORS

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| Award | 1st Best Paper Award
NLS Winter Intensive |
| Aug 2026 | Outstanding Paper Publication
BK21 FOUR MERIT Convergence Innovation Talents Training Group
Recognized for SCI(E) publications in Internet of Things and IEEE Internet of Things Journal. |

PUBLICATIONS

Journals

1. **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2026). P-Orion: Trusted Hierarchical Learning and Allocation in 6G Satellite Constellations. ICT Express. <https://doi.org/10.1016/j.ict.2026.06.016>
2. Jiaju Wang, Uzair Iqbal, Nurzati Iwani Othman, **Hamza Ibrahim**. (2026). Hyperparameter-Tuned Convolutional Neural Network Models for Unmanned Aerial Vehicle-Assisted Plant Pathology Monitoring. International Journal of Technology 17 (4), 1283.
3. Love Allen Chijioke Ahakonye, **Hamza Ibrahim**, Jae-Min Lee, Dong-Seong Kim. (2026). Uncertainty-Aware Intrusion Detection and Prevention for DDS-Based SCADA Systems. IEEE Internet of Things Journal.
4. Usman Bello, **Hamza Ibrahim**, Haruna Adamu, Love Allen Chijioke Ahakonye, Mohammad Nahid Siddiqui, Abdul Gani Abdul Jameel. (2026). Machine Learning-Blockchain Enabled Predictive Framework for Sustainable Polystyrene Waste Tracking Towards Energy Recovery. Sustainable Materials and Technologies, e02054.
5. **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2026). PureChain Closed Loop Intrusion Detection and Real-Time Recovery for Industrial IoT. IEEE Internet of Things Journal. <https://doi.org/10.1109/JIOT.2026.3672474>
6. **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2026). Bibliometric Analysis of Secure IoT for Quantum Computing. Internet of Things, 101872. <https://doi.org/10.1016/j.iot.2026.101872>
7. **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2026). A Unified AI-PureChain Framework for Verifiable Intrusion Prevention in Industrial IoT Systems. IEEE Internet of Things Journal. <https://doi.org/10.1109/JIOT.2026.3652250>
8. Usman Bello, Haruna Adamu, Shafirah Samsuri, **Hamza Ibrahim**, Mohammad Qamar. (2025). Improving Biodiesel Oxidative Stability Using Antioxidants: An Insight Into the Research Trends and Future Prospects From a Bibliometric Approach. Results in Engineering 26, 105185.
9. Dennis Precious Eze, Idi Masaudu Adamu, Suleiman Nasiru Yakubu, **Hamza Ibrahim**, Umar Ali Bukar. (2024). Multi-Criteria Decision Making Approach for Selecting Efficient Electronic Banking Institution. International Journal of Current Researches in Sciences, Social Sciences and Languages, 4(2), 77-90.
10. **Hamza Ibrahim**, Jinsul Kim, Umar Ali Bukar. (2023). Leveraging Blockchain Technology for Trustworthy Information Dissemination in Nigerian Networks. The Journal of Contents Computing 5 (2), 727-753. <https://doi.org/10.9728/jcc.2023.12.5.2.727>
11. **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (). Autonomous Intrusion Detection and Self-Recovery Framework for Resilient Industrial IoT Systems. .

Conferences

1. **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2026). PureChain-Based Real-Time Intrusion Detection for Secure Industrial Humanoid IIoT Communication. 2026 Seventeenth International Conference on Ubiquitous and Future Networks (ICUFN).
2. **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2026). Blockchain-Driven Intrusion Prevention and Runtime Assurance for Cyber-Physical Systems. 2026 IEEE International Conference on Blockchain and Cryptocurrency (ICBC), 1-9.
3. Jae Woo Kim, **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2026). Governance-Aware Lightweight Consensus for Industrial IoT and Cyber-Physical Systems. 2026 IEEE International Conference on Blockchain and Cryptocurrency (ICBC), 1-5.
4. Love Allen Chijioke Ahakonye, **Hamza Ibrahim**, Cosmas Ifeanyi Nwakanma, Jae-Min Lee, Dong-Seong Kim. (2026). Integrating XAI and Blockchain to Enhance Security and Resilience in Industrial Operations. 2026 International Conference on Artificial Intelligence in Information and Communication (ICAIIIC).

5. **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2026). Secure Federated Learning for Real-Time Cyber Threat Detection in EV Charging Infrastructures. 2026 International Conference on Artificial Intelligence in Information and Communication (ICAIIIC). <https://doi.org/10.1109/ICAIIIC68212.2026.11454184>
6. Love Allen Chijioke Ahakonye, Jae Woo Kim, **Hamza Ibrahim**, Jae-Min Lee, Dong-Seong Kim. (2026). Adaptive ML-Driven Detection and Defense Against Side-Channel Attacks in Blockchain Consensus Networks. 2026 IEEE International Conference on Consumer Electronics (ICCE), 1-6.
7. **Hamza Ibrahim**, Prosper Uzoma Ahakonye, Precious Nwadiuto Ahakonye, Won Jae Ryu, Love Allen Chijioke Ahakonye, Jae-Min Lee. (2026). Integrated Blockchain and Machine Learning Framework for Polystyrene Waste Traceability. 2026 IEEE International Conference on Consumer Electronics (ICCE), 1-6. <https://doi.org/10.1109/ICCE67443.2026.11449676>
8. Love Allen Chijioke Ahakonye, **Hamza Ibrahim**, Jae-Min Lee, Dong-Seong Kim. (2025). Bioluminescent Filament-Inspired AI for Adaptive Smart Contract Intrusion Detection. Proceedings of the 9th International Conference on Algorithms, Computing and Systems (ICACS 2025), Bangkok, Thailand.
9. **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2025). PureChain-Based Intrusion Detection and Prevention System for Secure Industrial Internet of Things. Proceedings of the Korean Institute of Communications and Information Sciences (KICS 2025), 520-521.
10. **Hamza Ibrahim**, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2025). Synergistic Blockchain and Zero Trust Framework for Securing Industrial IoT Against Cyber Threats. 2025 16th International Conference on Information and Communication Technology Convergence (ICTC), Jeju, South Korea. <https://doi.org/10.1109/ICTC66702.2025.11388337>
11. **Hamza Ibrahim**, Kalibbala Jonathan Mukisa, Love Allen Chijioke Ahakonye, Jae-Min Lee, Dong-Seong Kim. (2025). Impact of PureChain for Secure and Scalable Cybersecurity in Resource-Constrained IIoT. Proceedings of the 35th Joint Conference on Communications and Information (JCCI 2025), Seoul, South Korea.

Book Chapter

1. Umar Ali Bukar, **Hamza Ibrahim**, Bello Sani Yahaya. (2025). Charting the Future of AI in the Next Decade: Emerging Trends and Conclusions. The Smart Life Revolution: Embracing AI and IoT in Society, 245. <https://doi.org/10.1201/9781003509196>

MEMBERSHIP

IEEE ComSoc Graduate Student Member; Nigeria Computer Society (NCS), Student Member.

SKILLS

Languages: English

Programming and Research Tools: Python, VOSviewer, LaTeX

ML / AI Frameworks: PyTorch, TensorFlow, Keras, MATLAB

Blockchain Systems: Ethereum Virtual Machine, Ganache, Hyperledger Fabric, PureChain

Systems: Linux, macOS, Windows, Ubuntu, Docker

REFERENCES

Available on request.