Professor Dr. Sazzad Hossain

Faculty of Artificial Intelligence and Digital Technologies
Samarkand State University named after Sharof Rashidov, Uzbekistan

CONTACT AND SCHOLARLY PROFILES

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Website: professorsazzad.com
Google Scholar: Public profile
ORCID: 0009-0003-1351-7287
LinkedIn: Profile
Academic experience: 30+ years
Peer-reviewed journal and conference papers: 150+
Scholar metrics: 1,846 citations | h-index 23 | i10-index 38
Languages: English, Bengali, Russian

PROFESSIONAL PROFILE

Distinguished academic leader, researcher, policy contributor, and technology strategist with over three decades of experience in quantum computing, artificial intelligence, cybersecurity, IoT, robotics, and digital transformation. Proven track record in university teaching and scholarly research, industry-academia collaboration, startup development, building innovative education ecosystems, OER and blended learning design, national education governance, satellite-sector leadership, international conference organization, and cross-border higher academic collaboration across Bangladesh, the USA, Russia, and Uzbekistan.

AREAS OF EXPERTISE

- Quantum computing, quantum algorithms, quantum circuit optimization, and reversible logic
- Artificial intelligence, machine learning, explainable AI, and data-driven decision support
- Cybersecurity, cryptography, IoT security, and digital systems
- Human-computer interaction, robotics, and emerging digital technologies
- Academic leadership, curriculum development, research collaboration, and technology policy

SELECTED LEADERSHIP HIGHLIGHTS

- Chief Advisor and Convenor of the National STEAM Olympiad, leading a large-scale innovation and education initiative that engaged 100,000+ students in collaboration with the Ministry of Education, Bangladesh.
- Organizer Chair of the International Conference on the 4th Industrial Revolution (IC4IR), one of the largest conferences ever hosted by the University Grants Commission of Bangladesh, attended by four Nobel Laureates and more than 4,000 participants.
- Organizer of the 5th International Conference on Trends in Electronics and Health Informatics (TEHI 2025), held at Samarkand State University, which brought together leading researchers, scholars, and professionals from around the world.
- Organizer of the Quantum Computing Summer School 2025 at the Samarkand State University,
- Former Member of the University Grants Commission of Bangladesh and former Independent Director of Bangladesh Satellite Company Limited, contributing to higher-education policy, research strategy, digital governance, and national technology initiatives.
- Founder of iTesseract Technologies and active contributor to AI-enabled learning platforms, blended learning innovation, and STEAM ecosystem development.
- Editor and Academic Leader, contributing to Springer-published conference proceedings, international academic collaborations, and interdisciplinary research initiatives.

EDUCATION

Ph.D. in Electrical and Computer Engineering **2009**

Portland State University, Oregon, USA

Dissertation: Classical Search and Quantum Search Algorithms for Synthesis of Quantum Circuits and Optimization of Quantum Oracles

Advisor: Professor Marek A. Perkowski

M.Sc. in Electrical and Computer Engineering **2001**

Portland State University, Oregon, USA

Specialization: Cryptography and Network security

Notable Project: Research on Reversible Logic Circuits and Energy Consumption in Digital Systems

Advisor: Professor Marek A. Perkowski

B.Sc. in Electrical System Network Engineering **1994**

Moscow Technical University, Moscow, Russia

Core Subjects: Digital Systems, Electronic Circuits, Microprocessors, Computer Architecture, Data Communications, Networking, Control Systems, Programming.

Higher Secondary Certificate (H.S.C.) **1986**

Chittagong College, Bangladesh

Secondary School Certificate (S.S.C.) **1984**

Faujdarhat Cadet College, Bangladesh

ACADEMIC AND ADMINISTRATIVE APPOINTMENTS

Professor, Faculty of Artificial Intelligence and Digital Technologies **Nov 2024 – Present**

Samarkand State University named after Sharof Rashidov, Uzbekistan

Samarkand State University named after Sharof Rashidov is a leading and historic university in Uzbekistan, renowned for its strong academic tradition, research excellence, and vital role in higher education in the region.

- Provide academic, strategic, and operational leadership in teaching, research, and international collaboration across artificial intelligence, quantum computing, IoT, cybersecurity, and other emerging digital technologies.
- Direct and advance high-impact interdisciplinary research programs, fostering integration across AI, quantum technologies, IoT, and related domains to strengthen the faculty's research profile and innovation capacity.
- Establish and cultivate international research partnerships, institutional agreements, and academic networks to expand collaborative scholarship, mobility, and global engagement.
- Lead the development and management of competitive international grant proposals to enhance external research funding opportunities and institutional visibility.
- Design, modernize, and enrich undergraduate, master's, and doctoral curricula by embedding frontier topics, contemporary pedagogies, and industry-relevant digital competencies.
- Conceive, organize, and execute high-profile academic events, summer schools, and scholarly conferences that promote knowledge exchange and international academic standing.
- Supervise and mentor master's and doctoral candidates, while advising and nurturing early-career faculty in research, teaching, and academic development.
- Provide strategic guidance to university leadership on research priorities, internationalization, advanced technology initiatives, and policy-related matters.

- Lead institutional initiatives such as the establishment of the Cybersecurity Center in collaboration with Washington University of Science and Technology, strengthening cybersecurity resilience, governance, and digital capacity.
- Actively contributes to major international initiatives and collaborative programs, including the Quantum & Technology Summer School 2025 and TEHI 2025, enhancing the faculty's regional and global academic presence.

Professor and Head, Department of International Education Development Oct 2024 - Mar 2025

Synergy University, Moscow, Russia

Synergy University is a prominent private university in Moscow, Russia, known for its career-focused education and modern academic programs.

- Provided strategic leadership in international education development, academic collaboration, and research advancement.
- Led the development of international partnerships, agreements, and collaborative academic initiatives.
- Promoted joint research, faculty exchange, and student mobility opportunities with global institutions.
- Contributed to curriculum development and academic innovation across undergraduate and postgraduate programs.
- Strengthened industry–academia collaboration through internships, applied research, and innovation initiatives.
- Provided academic leadership in Quantum Computing, Artificial Intelligence, and the Internet of Things.
- Mentored faculty members and postgraduate researchers, supporting research growth and academic excellence.
- Advised university leadership on research strategy, internationalization, and institutional development.

Member Jun 2019 - Sep 2024

University Grants Commission (UGC) of Bangladesh

The University Grants Commission (UGC) of Bangladesh is the apex statutory body responsible for overseeing, coordinating, regulating, and promoting higher education in the country.

- Provided strategic leadership to the Research and Development Division and the Information Management, Communication & Training Division of the University Grants Commission of Bangladesh.
- Contributed to higher education policy, research advancement, digital transformation, and innovation strategy to strengthen the national university sector.
- Led initiatives to expand PhD and Post-Doctoral fellowships, recognize outstanding research achievements, and enhance institutional research capacity.
- Promoted paperless administration and digital governance through the implementation of systems such as E-Nothi and D-Nothi.
- Expanded access to leading international scientific journals and supported universities in strengthening research culture and academic excellence.
- Fostered academia–industry collaboration, international university partnerships, and greater support for scientific conferences and knowledge exchange.
- Played a key role in the development of major higher education projects, including ICSETEP and HEAT, supported by ADB and the World Bank.
- Contributed to national initiatives focused on curriculum modernization, capacity building, emerging technologies, and strengthening Bangladesh's higher education ecosystem.

Independent Director **Aug 2019 - Aug 2024**

Bangladesh Satellite Company Limited (BSCL), Bangladesh

Bangladesh Satellite Company Limited (BSCL) is Bangladesh's state-owned satellite operator, providing advanced satellite and connectivity services to support national and regional communication needs.

- Guided Bangladesh Satellite Company Limited (BSCL) in advancing its strategic mission, long-term vision, governance standards, and overall organizational growth as an Independent Director on the Board.
- Contributed to board-level strategic deliberations and policy discussions relevant to the satellite communications and national digital connectivity sectors.
- Provided informed oversight and strategic guidance on technology-driven initiatives, drawing on expertise in information technology and emerging digital systems.
- Supported institutional strengthening through independent judgment, accountability, and active participation in Board decision-making processes.
- Reinforced corporate governance and transparency by ensuring effective independent oversight and strengthening the governance framework of the company.
- Contributed to the broader strategic direction of BSCL in alignment with national priorities in communications infrastructure, technological advancement, and innovation.

Professor and Head, Department of Computer Science and Engineering **Nov 2009 - Jun 2019**

University of Liberal Arts Bangladesh (ULAB), Bangladesh

University of Liberal Arts Bangladesh (ULAB) is a leading private university in Bangladesh, known for its commitment to academic excellence and research focus.

- Provided academic and administrative leadership for the Department of Computer Science and Engineering, ensuring effective governance, quality assurance, and overall departmental development.
- Oversaw teaching, curriculum planning, course coordination, student advising, and the day-to-day academic and operational activities of the department.
- Led curriculum development and academic improvement initiatives to align programs with evolving disciplinary standards, industry needs, and emerging technologies.
- Supervised undergraduate students in academic, research, thesis, and project-based activities, fostering innovation, critical thinking, and technical competence.
- Taught advanced Computer Science and Engineering courses and promoted excellence in teaching, learning, and academic performance within the department.
- Guided faculty members in academic planning, teaching effectiveness, and departmental responsibilities to strengthen overall academic quality.
- Contributed to the development of a strong academic environment through student mentoring, outcome-based learning practices, and continuous program enhancement.
- Supported the growth of the department through leadership in academic planning, faculty coordination, and student-centered initiatives.

Adjunct Teaching and Research Roles **2001 - 2009**

Independent University, Bangladesh and Portland State University, USA

- Contributed to teaching, curriculum delivery, and academic support activities in computing and engineering disciplines, enhancing student learning through effective classroom engagement and academic mentoring.
- Supported research and scholarly activities by collaborating on technical and academic projects and guiding students in academic and project-based work.

LEADERSHIP, GOVERNANCE, AND ADVISORY ROLES

- Chief Advisor, National STEAM Olympiad.
- Founder, iTesseract Technologies.
- Founder and Chairman, Alternative and Sustainable Energy Foundation Bangladesh.
- Deputy Managing Director and Advisor, PeopleNTech.
- Advisor, Bangladesh Innovation Forum.
- Co-Founder, Data Science Bangladesh.
- Advisor, Bangladesh Robotics Foundation.
- Expert Member, various ICT Ministry and Bangladesh Hi-Tech Park Authority (BHTPA) technical and curriculum committees, including IoT Lab- and AR/VR-related committees (2016).
- Advisor, ADN Group Limited (2012-Present), supporting technology, strategy, and innovation initiatives.
- Advisor, Healthbd24.com (2013-Present), contributing to digital-health and technology-enabled service development.
- Advisor, Prothompalok (2016-Present) and Spectrum Consortium Engineering Ltd. (2015-2024), supporting innovation, engineering, and technology strategy.
- Founder and Advisor, Mastersab, an academic e-learning solutions initiative.

RESEARCH, TEACHING, AND MENTORSHIP

Research interests include quantum computing, quantum algorithms, artificial intelligence, explainable AI, cybersecurity, IoT, robotics, human-computer interaction, software engineering, low-power VLSI design, renewable energy, and digital transformation.

Selected research initiatives and projects

- AI-driven Cybersecurity and Big Data Analytics / related research-center development initiatives at Samarkand State University.
- Cross-border research collaboration initiatives in AI, cybersecurity, and quantum computing at Synergy University.
- National Cybersecurity Awareness / secure-systems-related initiatives.
- Research and development in STEAM education technology and AI-powered learning platforms through iTesseract Technologies.

Selected research grants and funded projects

- Principal Investigator, A Holistic Mitigation Approach to Arsenic Contamination via Sensing, Communication and Collaboration (2013-2014).
- Co-Investigator, Poor Utilization of Road Networks and Variable Vehicular Speeds: an empirical and modeling study of factors contributing to traffic congestion (2013-2014).
- Research contributor, CAD Tools for Quantum Computer and related automated quantum-layout research initiatives supported through Portland State University and International Islamic University Chittagong.
- Research contributor, Model for Human-Robot Interaction and Development of the Human Agent for Human-Robot Interaction, Portland State University / Intelligent Robotics Laboratory.

Selected courses taught

- Introduction to Quantum Computing
- VLSI Design
- Game Theory
- Artificial Intelligence
- Cybersecurity
- Human-Robot Interaction
- Network Security
- Cryptography

Mentorship and academic contribution

- Mentored and supervised undergraduate and postgraduate students in computing and engineering disciplines.
- Contributed to curriculum development, interdisciplinary research, conference organization, and international academic partnerships.
- Served as visiting faculty member / invited speaker / academic contributor at multiple institutions and events.

Additional academic support and instructional roles

- Teaching Assistant, Portland State University, Oregon, USA (2000-2001; 2005-2008).
- Lab Instructor, Preparatory Academics for Oregon Engineers, USA (2005-2007).
- Team Leader, Advanced Engineering and Research Center, International Islamic University Chittagong, Bangladesh.
- Supervisor, Networks and Computer Labs, International Islamic University Chittagong, Bangladesh (Nov 2001-Dec 2004).

AWARDS, FELLOWSHIPS, AND HONORS

- National Digital Transformation Award for contributions to AI and Quantum Computing.
- AABL Leadership Award.
- Best Paper Award, Regional Conference on Computing, 2023.
- Board Award for Academic Excellence in S.S.C. and H.S.C. examinations.
- Ph.D. Fellowship / doctoral funding support associated with International Islamic University Chittagong, 2005-2008.
- Moscow Technical University Undergraduate Scholarship (1991-1994).
- Teaching Assistantship and Research Assistantship, Portland State University, Oregon, USA.
- Talent Pool Merit Scholarships.

PROFESSIONAL MEMBERSHIPS AND SERVICE

Memberships and affiliations

- Life Fellow, Institution of Engineers Bangladesh (IEB).
- Central Council Member, Institution of Engineers Bangladesh (2015-2017).
- Life Fellow, American Alumni Association.
- Life Member, Russian Alumni Association.
- Life Member, CUET Ex-Student Association.
- Life Member, Old Faujian Association.
- Life Member, Ex-students of Chittagong Government College.
- Senior member / member affiliations: IEEE, ACM, and IEICE.
- Board Member, Bangladesh AI Research Society (BAIRS).

Service and leadership

- Organizing Chair / organizer associated with the International Conference on Fourth Industrial Revolution and Beyond.
- Conference leadership and organizing roles related to TEHI 2025 and Quantum Computing Summer School 2025.
- Reviewer / editorial and external academic service for journals, conferences, and academic events.
- Secretary General, Central Governing Body, Old Faujian Association (2011-2012).

SELECTED PUBLICATIONS

BOOKS AND AUTHORED WORKS

- Md. Sazzad Hossain et al., Proceedings of The Fourth Industrial Revolution and Beyond, Lecture Notes in Electrical Engineering, Springer Nature, 2022. ISBN: 978-981-19-8031-2.
- Md. Sazzad Hossain et al., Proceedings of International Conference on Fourth Industrial Revolution and Beyond 2021, Lecture Notes in Networks and Systems, vol. 437, Springer, 2022. DOI: 10.1007/978-981-19-2445-3.
- S. Hossain, M. Q. Maula, and M. M. Jahangir, Programming in C - Basic, Advanced & Graphics Programming, Popular Books, Dhaka, August 2003. ISBN: 984-32-0694.
- Sazzad Hossain, অদৃশ্য প্রযুক্তি (Invisible Technology), Bangla science/technology book.

EDITED VOLUMES

- Hossain, S., Hossain, M. S., Kaiser, M. S., Majumder, S. P., and Ray, K. (eds.), Proceedings of International Conference on Fourth Industrial Revolution and Beyond 2021, Lecture Notes in Networks and Systems, vol. 437, Springer, 2022.
- Hossain, M. S., Siddique, N., Majumdar, S. P., and Hossain, S. (eds.), Proceedings of International Conference on Fourth Industrial Revolution and Beyond 2021, Springer, 2022.

JOURNAL ARTICLES

- Gupta, S., Ray, K., Kaiser, S., Hossain, S., Faubert, J. (2026). Quantum-Enhanced Multimodal Fusion Networks for Integrated Cancer Diagnosis: Combining CT, Genomics, and Clinical Records. Algorithms (MDPI). DOI:10.3390/a19040279
- Gupta, S., Ray, K., Kaiser, S., Hossain, S., Faubert, J. (2026). Enhanced Facial Realism in Personalized Diffusion Models: A Memory-Optimized DreamBooth Implementation for Consumer Hardware. Algorithms (MDPI). DOI: 10.3390/a19040257
- Rahman, M. M., Hossain, S. (2026). AI-Augmented Federated Learning: A Predictive Framework for Detecting and Real-Time Correlation of IAM, Network Telemetry, and Endpoint Events for Preventing Lateral Movement Attacks. Scientific Culture.
- Zisad, S. N., Hossain, M. S., Hossain, S., and Andersson, K. (2021). An Integrated Neural Network and SEIR Model to Predict COVID-19. Algorithms, 14(3), 94. DOI: 10.3390/a14030094.
- Mansoor, N., Uddin, S. M. N., and Hossain, S. (2016). A Robust Architecture for CR-VANET in Multi-agent Based Intelligent Traffic Management System. Jurnal Teknologi.
- Giesecke, N., Hossain, S., Kim, D. H., and Perkowski, M. (2009). Search for Universal Ternary Quantum Gate Sets with Exact Minimum Costs. Journal of System Architecture / EUROMICRO Journal.
- Hossain, S., Islam, M., Bashar, R., and Alamgir (2004). Logical Reversibility Based on Reversible Computing Technology. Asian Journal of Information Technology, 3(4), 241-244.
- Seddiqui, M. N., Hossain, S., and Bashar, M. R. (2004). Bangla Spell Checker Considering Relative Disposition of Characters and Phonetic Similarity. Asian Journal of Information Technology, 3(4), 241-244.
- Kamal, N., Sarkar, F., Rahman, A., Hossain, S., and Mamun, K. A. M. (2024). Recommender System in Academic Choices of Higher Education: A Systematic Review. IEEE Access. DOI: 10.1109/ACCESS.2023.0322000.
- Seyam, T. A., Hossain, M. S., Ghose, R., Nurmamatov, M., Fayzullo, N., Hadika, Z., and Pathak, A. (2025). Next-Generation K-Means Clustering: Mojo-Driven Performance for Big Data. International Journal of Intelligent Information Systems, 14(1), 7-19. DOI: 10.11648/j.ijiis.20251401.12.

- Hossain, S., Seyam, T. A., Chowdhury, A., Ghose, R., Rahaman, A., Hadika, Z., and Pathak, A. (2025). Enhancing Agricultural Diagnostics: Advanced Training of Pre-Trained CNN Models for Paddy Leaf Disease Detection. Machine Learning Research, 10(1), 1-13. DOI: 10.11648/j.mlr.20251001.11.

CONFERENCE PAPERS AND BOOKS CHAPTERS

- Rahman, M. M., Hossain, S., Arabi, M. Q. A., Shomrat, K. H., Haque, K. S. S., Foysal, M. H., Rahman, S. U. (2026). A Federated Learning Framework for Privacy-Preserving Threat Detection in Zero Trust Network Access (ZTNA). 2nd International Conference on Recent Advancement and Modernization in Sustainable Intelligent Technologies & Applications (RAMSITA - 2026).
- Gupta, S., Kumari, M., Harish, A., Kumar, U., Hossain, S., Ray, K. (2026). Quantum-Enhanced Neural Signal Processing Framework for MHz-Range Consciousness Studies: A Nanoscale Brain Model Approach. MBBC-2026.
- Gupta, S., Kumari, M., Harish, A., Kumar, U., Hossain, S., Ray, K. (2026). Nanoscale Electromagnetic Field Dynamics and MHz-Range Signal Propagation in Consciousness Models: Integration of Microtubule Networks with Neural Field Theory. MBBC-2026.
- Gupta, S., Ray, K., Faubert, J., Kaiser, S., Hossain, S., Ahmed, B. (2026). Quantum-Enhanced Neural Signal Processing Framework for MHz-Range Consciousness Studies: A Nanoscale Brain Model Approach. Recent Advances in Computer Science and Communications.
- Rahman, S. U., Ahmed, T., Foysal, M. H., Talha, T. A. A., Shakil, N.H., Rahman, M. M., Nath, R. C., Hossain, M. R., Alam, M. M. (2026). Classification of Phishing Mail Detection Using Hybrid Approach of Fusion Model. International Seminar on Intelligent Business and Edge-Computing Research (ISIBER) 2026, Jakarta, Indonesia.
- Mahmud, T., Barua, K., Chakma, K., Chakman, R., Sharmen, N., Kaiser, M. S., Hossain, M. S., and Andersson, K. (2024). Exploring the Effectiveness of Region-Based CNNs in Skin Cancer Diagnosis. In Proceedings of Trends in Electronics and Health Informatics (TEHI 2023), Lecture Notes in Networks and Systems, vol. 1034, Springer. DOI: 10.1007/978-981-97-3937-0_26.
- Mahmud, T., Aziz, M. T., Uddin, M. K., Barua, K., Rahman, T., Sharmen, N., Kaiser, M. S., Hossain, M. S., and Andersson, K. (2024). Ensemble Learning Approaches for Alzheimer's Disease Classification in Brain Imaging Data. In Proceedings of Trends in Electronics and Health Informatics (TEHI 2023), Lecture Notes in Networks and Systems, vol. 1034, Springer.
- Barua, K., Mahmud, T., Barua, A., Sharmen, N., Basnin, N., Islam, D., Hossain, M. S., Andersson, K., and Hossain, S. (2023). Explainable AI-based Humerus Fracture Detection and Classification from X-ray Images. In 2023 26th International Conference on Computer and Information Technology (ICCIT), IEEE.
- Chowdhury, N. A., Mahmud, T., Barua, A., Basnin, N., Barua, K., Iqbal, A., Hossain, M. S., Andersson, K., Kaiser, M. S., Hossain, M. S., and Das, S. (2024). A Novel Approach to Detect Stroke from 2D Images Using Deep Learning. In Proceedings of the 2nd International Conference on Big Data, IoT and Machine Learning (BIM 2023), pp. 239-253, Springer. DOI: 10.1007/978-981-99-8937-9_17.
- Nahar, N., Hossain, M. S., Jahan, S., Tasnim, M., Andersson, K., and Hossain, S. (2021). Smart Home Surveillance Based on IoT. In Proceedings of International Conference on Fourth Industrial Revolution and Beyond 2021, LNNS 437, Springer. DOI: 10.1007/978-981-19-2445-3_39.
- Akter, N., Junjun, J. A., Nahar, N., Hossain, M. S., Andersson, K., and Hossain, S. (2021). Brain Tumor Classification using Transfer Learning from MRI Images. In Proceedings of International Conference on Fourth Industrial Revolution and Beyond 2021, LNNS 437, Springer. DOI: 10.1007/978-981-19-2445-3_40.

- Sumi, T. A., Basnin, N., Hossain, M. S., Andersson, K., and Hossain, S. (2021). Classifying Humerus Fracture using X-ray Images. In International Conference on Fourth Industrial Revolution and Beyond (IC4IR), Springer (as listed).
- Karim, R., Hossain, M. S., Hossain, S., Andersson, K., Zobaeir, A. S. M., and Ahmed, M. (2021). A Belief Rule Based Decision Support System to Assess Multiple Disease Suspicion from Signs and Symptoms under Uncertainty. In IC4IR, Springer (as listed).
- Hossain, M. S., Hossain, S., Ahmed, T. W., Islam, R. U., and Andersson, K. (2021). A Deep Learning Approach with Data Augmentation to Recognize Facial Expressions in Real Time. In Third International Conference on Trends in Computational and Cognitive Engineering (TCCE), Springer.
- Gupta, D., Hossain, E., Hossain, M. S., Hossain, S., and Andersson, K. (2020). An Interactive Computer System with Gesture-Based Mouse and Keyboard. In International Conference on Intelligent Computing & Optimization, Springer, pp. 894-906.
- Ahmed, T. W., Jamil, M. N., Hossain, M. S., Andersson, K., and Hossain, S. (2020). An Integrated Real-Time Deep Learning and Belief Rule Base Intelligent System to Assess Facial Expression Under Uncertainty. In Proceedings of the 9th International Conference on Informatics, Electronics & Vision (ICIEV), IEEE.
- Gupta, D., Fahad, E. H., Hossain, M. S., Andersson, K., and Hossain, S. (2019). A Digital Personal Assistant using Bangla Voice Command Recognition and Face Detection. In IEEE International Conference on Robotics, Automation, Artificial-Intelligence and Internet-of-Things 2019.
- Chowdhury, R. R., Hossain, M. S., Hossain, S., and Andersson, K. (2019). Analyzing Sentiment of Movie Reviews in Bangla by Applying Machine Learning Techniques. In 2nd International Conference on Bangla Speech and Language Processing (ICBSLP), IEEE.
- Chowdhury, M. R., Hossain, M. S., Islam, R. U., Andersson, K., and Hossain, S. (2019). Bangla Handwritten Character Recognition Using Convolutional Neural Network with Data Augmentation. In Joint 8th International Conference on Information, Electronics and Vision (ICIEV), IEEE.
- Ahmed, T. U., Hossain, S., Hossain, M. S., Islam, R. U., and Andersson, K. (2019). Facial Expression Recognition Using Convolutional Neural Network with Data Augmentation. In Joint 8th International Conference on Information, Electronics and Vision (ICIEV), IEEE.
- Hossain, M. S., Hossain, M. E., Khalid, M. S., and Haque, M. A. (2014). A Belief Rule Based DSS to Assess Clinical Asthma Severity. In Linkoping Electronic Conference Proceedings, pp. 83-89.
- Mansoor, N., Farin, N. J., and Hossain, S. (2017). FITSYS: A Conceptual Framework for Intelligent Transportation System Driven Smart City in Bangladesh. In 57th Annual Convention, Institution of Engineers Bangladesh.
- Uddin, S. M. N., Mansoor, N., Rahman, M., Mohammed, N., and Hossain, S. (2016). A Framework for Event Anomaly Detection in Cognitive Radio Based Smart Community. International Workshop on Computational Intelligence (IWCI 2016).
- Uddin, S. M. N., Mansoor, N., and Hossain, S. (2016). Cognitive Radio Enabled VANET for Multi-agent Based Intelligent Traffic Management System. 1st International Conference on Advanced Information and Communication Technology (ICAICT 2016).
- Farin, N. J., Rahman, A., Mansoor, N., and Hossain, S. (2016). WoTCoMS: A Novel Cross-Layered Web-of-Things Based Framework for Course Management System. 1st International Conference on Advanced Information and Communication Technology (ICAICT 2016).
- Adnan, N., Islam, R., and Hossain, S. (2011). Clustering Software Systems to Identify Subsystem Structures using Knowledge Base. 5th Malaysian Engineering Software Conference (MYSEC 2011).

- Alam, M., and Hossain, S. (2010). Prediction Model for World Electricity Generation Concerning CO2 Emission. 6th International Conference on Electrical and Computer Engineering (ICECE 2010).
- Giesecke, N., Hossain, S., Kim, S., and Perkowski, M. D. H. (2007). Search for Universal Ternary Quantum Gate Sets with Exact Minimum Costs. Reed-Muller Conference, Oslo, Norway.
- Lukac, M., Giesecke, N., Hossain, S., Kim, S., and Perkowski, M. D. H. (2007). Quantum Behaviors: Synthesis and Measurement. Reed-Muller Conference, Oslo, Norway.
- Williams, Q., Kelley, M., Castillo, C., Lukac, M., Kim, D. H., Allen, J., Sunardi, S. M., Hossain, S., and Perkowski, M. D. H. (2007). An Emotional Mimicking Humanoid Biped Robot and its Quantum Control Based on the Constraint Satisfaction Model. ULSI 2007.
- Hossain, S., Islam, R. U., and Hossain, M. S. (2004). An Information System to Support Person Identification Using Ear Biometrics. 7th International Conference on Computer and Information Technology (ICCIT 2004).
- Hossain, M. S., Alamgir, M., and Hossain, S. (2004). An Object-Oriented Approach to Support Faster Retrieve and Manipulation of Spatial Data. 19th International Conference on Computers and Their Applications (CATA 2004).
- Hossain, M. S., Davies, C. G., and Hossain, S. (2002). An Information System to Visualise and Analyse Flood. 5th International Conference on Computer and Information Technology (ICCIT), East West University, Dhaka.
- Islam, M. N., Seddiqui, M. H., Hossain, S., and Hassan, M. M. (2002). An Optimal Bangla Keyboard Layout. 5th International Conference on Computer and Information Technology (ICCIT), East West University, Dhaka.

WORKSHOP PUBLICATIONS

- Hossain, S., Perkowski, M., and Zhao, F. (2010). Minimal Graph Coloring using the Quantum Algorithm of Grover and the Importance of Quantum Composition/Layout Problem in the Complete Design of Quantum Oracles. 9th International Workshop on Boolean Problems, Freiberg (Sachsen), Germany.
- Hossain, S., and Perkowski, M. (2008). The Affine Gates and Affine Polarities for Quantum Arrays with Small Costs. 17th International Workshop on Post-Binary ULSI Systems, Dallas, Texas, USA.
- Mahmud, M. et al. (2022). Towards Explainable and Privacy-Preserving Artificial Intelligence for Personalisation in Autism Spectrum Disorder. Universal Access in Human-Computer Interaction. User and Context Diversity (HCII 2022), pp. 356-370. DOI: 10.1007/978-3-031-05039-8_26.

MAGAZINE/TECHNICAL REPORTS

- Hossain, S. (2007). Future Computing. Advanced Computing, Portland State University, Oregon, USA.
- Hossain, S. (2006). Reversible Cellular Automata. Advanced Computing, Portland State University, Oregon, USA.
- Hossain, S. (2006). Humanoid Robots. Technical Report, Intelligent Robotics Laboratory, Portland State University, Oregon, USA.
- Hossain, S. (2005). NP-NP, NPN Classification for Logic Synthesis in Quantum Computer. Final Report for Quantum Research Group.

SUBMITTED/IN-PROGRESS WORKS

- Rahman, M. M., Hossain, S. (2026). Federated Learning and AI based ZTA for security, privacy, telemetry, IAM and fileless malware Detection and Prevention Framework: An in-depth review. International Journal of Data Science and Analytics.

- Rahman, M. M., Hossain, S. et. al. (2026). Enhancing API Security Through Zero Trust Architecture and Machine Learning: Detection, Prevention, Privacy, and Robustness. International Conference on Electrical, Computer and Communication Technologies (ECCT 2026).
- Rahman, M. M., Hossain, S. et. al. (2026). A DevSecOps-Integrated Runtime Contract Framework with Federated Anomaly Detection and Prevention for Identifying In-Memory Threats of Fileless Malware through Telemetry Analysis. International Conference on Electrical, Computer and Communication Technologies (ECCT 2026).
- Rahman, M. M., Hossain, S. et. al. (2026). Deep Learning Based Detection and Prevention of Fileless Malware. International Conference on Electrical, Computer and Communication Technologies (ECCT 2026).
- Rahman, M. M., Hossain, S. et. al. (2026). AI Driven Telemetry Based Detection and Prevention of Lateral Movement and Command and Control Attacks in Zero Trust Enterprise Networks and Applications. International Conference on Electrical, Computer and Communication Technologies (ECCT 2026).
- Islam, M. M., Salsabil, U., Hossain, S. (2026). RFID-Assisted Low-Cost Intersection Scheduling: A Starvation-Free Layered Shortest-Service-Quantum Controller for Isolated Urban Intersections. 12th Intelligent Systems Conference 2026.
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ACADEMIC TERM PAPERS/PROJECT STUDIES

- Study of PCI-X Bus System.
- Branch Prediction Technique in General and Special Processors.
- ATPG Tool Study for the Industry.
- Energy Consumption in Reversible Logic Circuits.
- Standard Cell Based Digital Circuit Design Methodology.

CURRENT PHD STUDENTS

PhD Research Title	Student Details
An AI-Augmented Unified Security Architecture (AI-USA) for Predictive and Automated Prevention of Advanced Cyber Threats in Zero Trust Environments	Engr. Md. Mushfiqur Rahman Adjunct Faculty, Bangladesh University of Professional (BUP) and AIUB Chief Technology Officer (CTO) ICT Division, Standard Bank PLC., Dhaka, Bangladesh

An Adaptive AI-Driven Security Architecture for IoT–Edge Networks with Lightweight Intrusion Detection and Post-Quantum Cryptography	Md Manirul Islam Director, Institute of Continuing Education and IT, Associate Professor, Department of Computer Science, American International University-Bangladesh
Applying AI and data-driven approaches to safeguard sensitive healthcare systems and patient data analytics pipelines	Abul Mohaimin Lead Director of Engineering Data, AI & Analytics Division, CVS Health, New York City, USA
AI-Driven Network and NLP-Based Automation for Detecting Money Laundering and Illicit Financial Flows (IFFs) Risks	Faisal Reza Legal Practitioner and Industry Research Collaborator
Integrating Artificial Intelligence and Machine Learning into Legal Systems: A Regulatory Monitoring and Justice Process Optimization Framework	**Mohammad Shafiqul Islam** Practicing Lawyer as an Advocate in both the Divisions of the Hon'ble Supreme Court of Bangladesh

MOST CITED AND IMPORTANT PEER-REVIEWED ARTICLES

Title	Year
The Affine Gates and Affine Polarities for Quantum Arrays with Small Costs	2008
Search for Universal Ternary Quantum Gate Sets with Exact Minimum Costs	2007
Quantum Behaviors: Synthesis and Measurement	2007
Facial Expression Recognition Using Convolutional Neural Network with Data Augmentation	2019
Towards Explainable and Privacy-Preserving Artificial Intelligence for Personalization in Autism Spectrum Disorder	2022
An Integrated Neural Network and SEIR Model to Predict COVID-19	2021
Classical Search and Quantum Search Algorithms for Quantum Circuits and Optimization of Quantum Oracles	2009
Analyzing Sentiment of Movie Reviews in Bangla by Applying Machine Learning Techniques	2019
A Novel Approach to Detect Stroke from 2D Images Using Deep Learning	2024
Explainable AI-based Humerus Fracture Detection and Classification from X-ray Images	2023
An Integrated Real-Time Deep Learning and Belief Rule Base Intelligent System to Assess Facial Expression Under Uncertainty	2020
Recommender System in Academic Choices of Higher Education: A Systematic Review	2024
Next-Generation K-Means Clustering: Mojo-Driven Performance for Big Data	2025
Enhancing Agricultural Diagnostics: Advanced Training of Pre-Trained CNN Models for Paddy Leaf Disease Detection	2025
Quantum-Enhanced Multimodal Fusion Networks for Integrated Cancer Diagnosis: Combining CT, Genomics, and Clinical Records.	2026
Enhanced Facial Realism in Personalized Diffusion Models: A Memory-Optimized DreamBooth Implementation for Consumer Hardware.	2026

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