



Professor Dr. SAZZAD HOSSAIN
Member, IMCT, Research Support & Publications Division

University Grants Commission of Bangladesh
E-mail: sazzad_member@ugc.gov.bd
Ph: +880258160101, **Cell:** +8801948777999
Web: www.ugc.gov.bd; www.sazzad.org

Profile and Career Highlights

A qualified Senior Professor, Researcher, Academic teaching Advisor with extensive experience in developing and conduction tertiary courses in Quantum computing technology, VLSI design, AI, Machine/Deep Learning, Big Data/ Data Analytics, Digital Signal & Image Processing and more relavents. An innovative and driven leader, focused on achieving exceptional results in highly competitive environment that demands continuous improvement. Person of high integrity known for ability to envision and implement with expertise.

Carrier Highlights

- + Head, Department of Computer Science and Engineering, University of Liberal Arts Bangladesh (December 2009 – May 2017).
- + Head, Department of Computer Science and Engineering, International Islamic University Chittagong, Bangladesh (March 2003 – May 2003).
- + Supervised more than hundred ungraduate students in their final year/semester thesis/project.
- + Twenty Six (26) years of experience in Teaching & Information Technology

PROFESSIONAL QUALIFICATIONS

- + Ph.D. in Electrical and Computer Engineering, Portland State University, Oregon, USA
Dissertation: Classical and Quantum Search Algorithms for Quantum Circuits and Optimization of Quantum Oracles
Advisor: Professor Dr.Marek A Perkowski
- + M.Sc. (Engg) in Electrical and Computer Engineering, Portland State University, Oregon, USA
Advisor: Professor Dr.Marek A Perkowski
- + B.Sc. (Engg.) in Electrical System Network Engineering
Moscow Technical University, Moscow, Russia
- + B.Sc. in Electrical & Electronics Engineering (EEE)
2nd Year Completed
Chittagong University of Engineering & Technology
- + H.S.C (Science)
Chittagong College, Secondary & Higher Secondary Education Board, Comilla
- + S.S.C (Science), Faujdarhat Cadet College,
Secondary & Higher Secondary Education Board, Comilla.

PROFESSIONAL MEMBERSHIP

- + Syndicate Member of Chittagong Medical University, Chittagong
- + Senate Member of Bangabandhu Sheikh Mujibur Rahman Aviation and Aerospace University, Sylhet
- + Member of ICT Master Plan for UGC, Ministry of Higher Education
- + Life Fellow, Institution of Engineers Bangladesh
- + Life Fellow, American Alumni Association
- + Life Member, Russian Alumni Association
- + Life Member, CUET Ex-Student Association
- + Life Member, Old Faujian Association(Ex-Cadet of Faujdarhat)
- + Life Member, Ex-student of Chittagong Govt. College

EMPLOYMENT HISTORY/RECORDS

ADMINISTRATIVE DUTIES/WORK EXPERIENCE

- + Head, Department of Computer Science and Engineering, University of Liberal Arts Bangladesh (December 2009 – May 2017)
- + Adviser, IT Division, University of Liberal Arts Bangladesh (February 2010 – 2019)
- + Head, Department of Computer Science and Engineering, International Islamic University Chittagong, Bangladesh (March 2003 – May 2003)
- + Convener, International Islamic University Chittagong, Library Automation Committee
- + Convener, Job Fair 2003, Chittagong, Bangladesh.

ACADEMIC POSITIONS

- + **Senior Professor,**
Department, of Computer Science and Engineering
University of Liberal Arts, Bangladesh (ULAB)
May 2017 to 2019
- + **Professor and Head,**
Department, of Computer Science and Engineering
University of Liberal Arts, Bangladesh (ULAB)
December 2009 to May 2017
- + **Professor and Head**
Department, of Computer Science and Engineering
International Islamic University Chittagong, Bangladesh
March 2003 – May 2003
- + **Professor**
Department, of Computer Science and Engineering
International Islamic University Chittagong, Bangladesh
September 2001- February 2003.

VISITING/ADJUNCT POSITIONS

- + **Adjunct Associate Professor**
School of Communication & Engineering,
Independent University of Bangladesh.
July 2009 - December 2009
- + **Adjunct Assistant Professor**
School of Communication & Engineering,
Independent University of Bangladesh.
November 2001- August 2002

INDUSTRIAL

- + **Advisor-IT**
University of Liberal Arts Bangladesh (ULAB)
Key Responsibilities:
 - Over viewing IT resources:
 - Over viewing IT infrastructure:
 - Coordinator for developing the software of ULAB Resource Management System (URMS) [ERP solution]
 - Plan for Network Infrastructure Management
 - Software Development and Business Automation (Ulab Resource Management System-Urms)
 - ULAB Lab Management For Student
- + **Assistant System Administrator**
Computer Support Team for ECE & CS Department,
Portland State University, Oregon, USA
January 2001- March 2001
Key responsibilities:

- UNIX and Windows NT network administration
- Network setup and topology
- UNIX and PC based servers and workstations
- + **Software Developer**
Ishika dot com, Ohio, USA
April 2001 – July 2001
- + **Application Programmer/Developer**
JSC Gonti International Ltd., Moscow, Russia.
August 1994 to September 1999
Key responsibilities:
 - Design, development and maintenance of project tracking database system for keeping track of employee payroll records, multiple projects, bonus calculations, client information, weekly produced billing invoices and quarterly generated performance reports.
 - Support, service and maintenance of data management system for providing top-down view of company database, keeping track of important business data for manufacturing, inventory, marketing and strategic planning in Windows 95/98/NT, FoxPro 2.5 environment.

CONSULTING POSITIONS

- + **ICT Business and System Analysis**
Spectrum Engineering Consortium Limited
Corporate Office
69/1, Panthapath, ChandrashilaSuvastu Tower, 7th Floor, Suite C, Dhaka-1205
Duration- 2011- 2018
- + **Software Development Center**
ICT Incubator, BSRS Bhaban, 7th & 8th Floor
12 KaziNazrul Islam Avenue, Karwan Bazar, Dhaka-1215
Duration- 2011- 2018

OTHER TEACHING ACTIVITIES

- + **IT Skill Trainer**
Volunteered for Under Privileged School Kids, Location
January 2011-December 2018
- + **Lego Robotics Trainer**
Volunteered for High School Kids, Location
June 2011-December 2018
- + **Teaching Assistant**
Portland State University
2005-Winter 2008
- + **Lab Instructor**
Preparatory Academics for Oregon Engineers
Summers 2005 – 2007
- + **Team Leader**
Advanced Engineering & Research Center,
International Islamic University, Chittagong
- + **Supervisor**
Networks & Computer Labs,
International Islamic University Chittagong, Bangladesh

November, 2001- December, 2004

- + **Teaching Assistant**
Portland State University
Fall 2001-Winter 2001
- + **Tutor**
Portland State University
Fall 2000 – Winter 2001

EDITORIAL

- + **Editor**
ULAB Journal of Science and Engineering
ISSN 2079-4398

ADVISORY ROLES

- + **Member, Technical Committee**
2nd International Conference on Electrical, Computer & Communication Engineering
07-09 February, Cox's Bazar, Bangladesh 2019
- + **Member, Session Chair**
2nd International Conference on Electrical, Computer & Communication Engineering
07-09 February, Cox's Bazar, Bangladesh 2019
- + **Member, Advisory Committee,**
1ST International Conference on Advanced Information and Communication
Technology (ICAICT 2016).

REVIEWER

- + Institution of Engineering and Technology Journals
- + International Journal of Electronics
- + International Journal of Computers & Mathematics with Applications
ISSN: 0898-1221
- + International Journal of Mathematical and Computer Modeling
ISSN: 0895-7177
- + Scientific Journals International (SJI)
ISSN: 1556-6757
- + Journal of Scientific Research
ISSN: 2070-0245

EXTERNAL SERVICES

Workshop

- + **Student Program Chair** - International Workshop on Robot and Human Interactive Communication (2005) Organizing Committee, Portland State University, Oregon, USA.
- + **Invited Speaker** - 4th Industrial Revolution: Transition to Transformation - Key Challenges & Opportunities for Bangladesh, Dhaka Chamber of Commerce & Industry (DCCI), 20th December, 2018.

- + **Discussionist**- Proposed Higher Education Acceleration and Transformation (HEAT) Project; invitation to Stakeholders Consultation regarding Research and Development. University Grants Commission (UGC) of Bangladesh. November 19, 2018.

Leadership

- + Chairman and Founder, Alternative and Sustainable Energy Foundation Bangladesh, *2011-present*
- + Secretary General, Central Governing Body, Old Faujian Association (Ex-Cadets of Faujdarhat Cadet), *2011-2012*
- + Science and Technology Secretary, CUET Ex-Student Association, *2011-2012*.

RESEARCH INTEREST

TITLES

Quantum computer, quantum algorithms, quantum entanglement, de-coherence, natural computing, fault-tolerant computing, biological computing, engineering mathematics, liberal mathematics, theoretical computer science, Nano Technology, Low Power VLSI Design, Reversible logic, Software Engineering, Social Computing, Big Data Analytics, IoT, Human Computer Interaction, Artificial Intelligent, Machine Learning, Robotics, Human Robot interaction.

GRANTS

Principal Investigator

- + **Project Name: A Holistic Mitigation Approach to Arsenic Contamination Via Sensing, Communication and Collaboration**
 - **Date:** September 2013 - December 2014
 - **Key Features:**
 - Usage of tube-wells instead of surface water have been increased for the last five decades
 - Lack of awareness and literacy regarding impacts of arsenic among the rural people
 - Replacement of tube-wells as drinking water source is yet to be sort out
 - Current detection system are not able to provide real-time information for monitoring arsenic of all tube-wells within a specific area simultaneously

Co-Investigator

- + **Project Name: Poor Utilization of Road Networks & Variable Vehicular Speeds: An Empirical and Modeling Study of the Factors to Traffic Congestion**
 - **Date:** November 2013 - December 2014
 - **Key Features:**
 - Usage of tube-wells instead of surface water have been increased for the last five decades
 - Lack of awareness and literacy regarding impacts of arsenic among the rural people

- + **Project Name: Faculty Research Opportunities Program**
 - **Date:** 2009
 - **Key Features:**
 - This work aimed to further develop a system that integrates human motion tracking hardware with a human model in a CAD environment, to demonstrate the interaction of the human-guided human model with a CAD object model, and to provide recommendations for the enhancement of the system.

- + **Title : CAD Tools for Quantum Computer**
 - **Funding Body:** Portland State University/International Islamic University Chittagong
 - **Key Features :**
 - Systematically design logic synthesis tools for Quantum Computers. Investigate the Automated tools for Quantum Layout.

- + **Title : Model for Human-Robot Interaction**
 - **Key Features :**
 - This work aims to investigate the factors of human-robot interaction necessary for social interaction between robots and people. At particular focus are technologies enabling the development of robotic personal assistants.

- + **Title: Development of the Human Agent for Human-Robot Interaction**
 - **Funding Body:** Intelligent Robotics Laboratory, Portland State University
 - **Date:** 2005 - 2009
 - **Key Features :**
 - Research focus is the development of robotic perception capabilities to detect and interact with humans. Employing detection technologies including face detection/recognition, speech recognition, and infrared motion detection. Coordinating interaction via actions, synthesized speech, and task behaviors to create robotic responses and interaction with humans.

- + **Title : (Engineering Capstone Design Projects Of Real World Problems) for Bangladesh**
 - **Date:** Summer 2009
 - **Key Features:**
 - This project evaluated the viability of using a more automated means of performing the water heating for Crocodile Farm in Valuka, Dhaka, Bangladesh and support Solar facilities Complex. The current availability of commercial units and the need for future adaptation/development will be investigated. This initial assessment will assist Solar Projects in commercial basis and in determining the path of supporting additional assessment and / or developmental activities.

- + **Title : Using Human Motion Tracking for Human Factors testing in Design**
 - **Date :** Fall 2008
 - **Key Features :**
 - Currently working with undergraduate students to continue work on interfacing human modeling, especially via motion tracking, into the design process for development, testing and verification.

PUBLICATIONS

JOURNALS

- + N. Mansoor, S. M. N. Uddin, **S. Hossain**, "A Robust Architecture for CR-VANET in Multi-agent Based Intelligent Traffic Management System" *JurnalTeknologi*, 2016 (Accepted for Publication). (SCOPUS Indexed)
- + N. Giesecke, **S. Hossain**, D. H. Kim, M.Perkowski, "Search for Universal Ternary Quantum Gate Sets with Exact Minimum Costs," *Embedded Software Design (Journal of System Architecture)*, The EUROMICRO Journal, 2009.
- + **S. Hossain**, M. Islam, R. Bashar and Alamgir "Logical Reversibility Based on Reversible Computing Technology" *Asian Journal of Information Technology*, Volume 3 Number 4, 2004, pp. 241-244, ISSN: 1638-8831
- + M.N.Seddiqui, **S. Hossain**, S.andM.R. Bashar, " Bangla Spell Checker Considering Relative Disposition of Characters And Phonetic Similarity" *Asian Journal of Information Technology*, Volume 3 Number 4, 2004, pp. 241 -244, ISSN: 1638-8831,

CONFERENCE PUBLICATIONS

- + T. Ahmed, **S. Hossain**, M. Hossain, R. Islam, K. Andersson"Facial Expression Recognition using Convolutional Neural Network with Data Augmentation" *IEEE, Joint 2019, 8th International Conference on Informatics, Electronics & Vision (ICIEV) & 3rd International Conference on Imaging, Vision & Pattern Recognition (IVPR)*, Apr 29, 2019, Cheney, WA USA.
- + R. Chowdhury, M. Hossain, R. Islam, K. Andersson, **S Hossain**. "Bangla Handwritten Character Recognition using Convolutional Neural Network with Data Augmentation" *IEEE, Joint 2019, 8th International Conference on Informatics, Electronics & Vision (ICIEV) & 3rd International Conference on Imaging, Vision & Pattern Recognition (IVPR)*, Apr 29, 2019, Cheney, WA USA.
- + A. A. Shakir, F. Hakim, M. Rasheduzzaman, S. Chakraborty, T. Ahmed, **S. Hossain**, "Design and Implementation of SENSEPACK: An IoT Based Mushroom Cultivation Monitoring System", *International Conference on Electrical, Computer Communication Engineering (ECCE)*, Coxes Bazar, February 7-9, 2019.
- + S. M. N. Uddin, N. Mansoor, M. Rahman, N. Mohammed, and **S. Hossain**, "A Framework for Event Anomaly Detection in Cognitive Radio Based Smart Community", *International Workshop on Computational Intelligence*, 2016 (IWCI 2016), December, 2016, Bangladesh. (Scopus Indexed)
- + S. M. N. Uddin, N.Mansoor, **S. Hossain**, "Cognitive Radio Enabled VANET for Multi-agent Based Intelligent Traffic Management System", *1 ST International Conference on Advanced Information and Communication Technology 2016 (ICAICT 2016)*, May 16-17, 2016, Chittagong, Bangladesh.
- + N.J.Farin, A. Rahman, N.Mansoor, **S. Hossain**, "WoTCOMS: A Novel Cross-Layered Web-of-Things Based Framework for Course ManagementSystem", *1 ST International Conference on Advanced Information and Communication Technology 2016 (ICAICT 2016)*, May 16-17, 2016, Chittagong, Bangladesh.

- + N.Adnan, R. Islam,**S. Hossain**, “Clustering Software Systems to Identify Subsystem Structures using Knowledgebase”, 5th Malaysian Engineering Software Conference (MYSEC2011), 2011, Universiti Teknologi Malaysia (UTM), Kuala Lumpur, Malaysia.
- + M. Alam, **S.Hossain**, “Prediction Model for World Electricity Generation Concerning CO₂ Emission”, 6th International Conference on Electrical and Computer Engineering (ICECE 2010), December, 2010, Dhaka, Bangladesh.
- + N. Giesecke, **S.Hossain**, **S. Kim**, M. D. H. Perkowski, “ Search for Universal Ternary Quantum Gate Sets with Exact Minimum Costs,” Proceedings of the Reed-Muller Conference, 2007, Oslo, Norway.
- + M. Lukac, N. Giesecke, **S.Hossain**, **S. Kim**, D.H., Perkowski, “ Quantum Behaviors: Synthesis and Measurement”, Proceedings of the Reed-Muller Conference, 2007, Oslo Norway.
- + Q. Williams, M. Kelley, C. Castillo, C. M. Lukac, **S.Hossain**, D.H. Kim, J.Allen, S.M.Sunardi, D.H.Perkowski, “An Emotional Mimicking Humanoid Biped Robot and its Quantum Control Based on the Contraint Satisfaction Model”, The proceedings of the International Conference, ULSI, 2007.
- + **S. Hossain**, R.U. Islam, M.S. Hossain, “A System to Support Person Identification using Ear Biometrics”, 7th International Conference on Computer and Information Technology (ICCIT-2004), www.bracuniversity.net/iccit2004/, December 26-28, 2004, Dhaka, Bangladesh
- + M.S. Hossain, M.Alamgir, **S.Hossain**, “An Object-Oriented Approach to Support Faster and Manipulation of Spatial Data”, 19th International Conference on Computers and Their Application (CATA-2004), March 18-20, 2004, Seattle, Washington, USA.
- + M.M. Alam, **S. Hossain**, “Prediction model for world electricity generation concerning CO₂ emission”, In Electrical and Computer Engineering (ICECE), 2010 International Conference on (pp. 342-345), Dhaka, Bangladesh.
- + **S. Hossain**, M. Perkowski, F. Zhao, “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, September 16-17, 2010, Freiberg (Sachsen), Germany.
- + M.S. Hossain, C.G. Davies, **S.Hossain**, “An Information System to Visualise and Analyse Flood” Proceedings of 5 th International Conference on Computer and Information Technology (ICCIT), East West University, December, 2002, Dhaka, pp. 559-564. ISBN: 984-32-0450 6
- + M.N. Islam, M.H.Seddiqui, **S.Hossain** and M. M. Hassan, “An Optimal Bangla Keyboard Layout”, Proceedings of 5 th International Conference on Computer and Information Technology (ICCIT), East West University, December, 2002, Dhaka, pp. 227-232. ISBN: 984-32-0450-6

WORKSHOPS PUBLICATIONS

- + **S. Hossain**, M. Perkowski, F. Zhao, “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, September 16-17, 2010, Freiberg (Sachsen), Germany.
- + **S. Hossain**, M. Perkowski, “The affine gates and affine polarities for quantum arrays with small costs”, 17th International Workshop on Post-Binary ULSI Systems, May 24, 2008, Dallas, Texas, USA.

MAGAZINE/ TECHNICAL REPORTS

- + **S. Hossain**, “Future Computing”, Advanced Computing, Portland State University, August 2007.
- + **S. Hossain**, “Reversible Cellular Automata”, *Advanced Computing, Portland State University*, July/August 2006.
- + **S. Hossain**, “Humanoid Robots” Technical Report, Intelligent Robotics Laboratory, Portland State University, December 2006.
- + **S. Hossain**, “NP-NP, NPN Classification for Logic synthesis in Quantum Computer”, Final Report for Quantum Research Group, August 2005.

BOOKS

- + **S. Hossain**, M.Q. Maula, M. M. Jahangir, “ Programming in C – Basic, Advanced & Graphics Programming”, Popular Books, Dhaka-1205, Bangladesh, August 2003, ISBN: 984-32-0694.
- + "The Invisible Technology" written by Dr. Sazzad Hossain, published by ProthomPalok publication in February 2018.
- + Alokito Bangladesh (Bengali): Prodanmontrir Digital Bangladesh ebong Torun Shamaj, editorial on 20th January 2019.

Doctoral Dissertation

- + **Title** : Classical and Quantum Search Algorithms for Quantum Circuits and Optimization of Quantum Oracles
- + **Contributions**
 - Introduced the concept of affine quantum gates and circuits
 - Generalized the concept of polarity to affine polarity
 - Wrote software to synthesize quantum circuits with affine gates. Introduced the concept of two-level search where the upper level performs evolutionary search in the space of polarities and the lower level the tree search within one polarity.
 - The methods of this type are very broad to design many classes of quantum circuits.
 - Found several applications of this methodology to solve combinatorial CAD problems such as minimization of electromagnetic pulses in NMR, affine circuit synthesis and classical AND/EXOR circuit synthesis.
 - Introduced new quantum oracles for several problems such as graph coloring, various forms of satisfiability, quantum circuit synthesis (ESOP), constraint satisfaction problems and puzzles
 - Introduced a new concept of hierarchical parallel hybrid search that uses classical master computers and slave computers being pairs of standard computer with Grover accelerator with various parameter setups of Grover accelerators.

TERM PAPERS

- + **Study Of PCI- X Bus System**: Competitive study of peripheral unit of different kind such as PCI-X, InfiniBand, Rapid IO, LDT .etc are compared in terms of main stream

computing, compatibility, marker catching, performance issue and found that PCI-X is the better solution.

- + **Branch prediction technique in general and special processors:** This paper describes how a SBI(Selective Branch Inversion) scheme is use on top of the existing branch prediction techniques (Gshare, Bi-Mode, McFarling) to get a higher prediction accuracy. It also describes techniques for SPMT processors. They are extrapolation, correlation and hybrid of extrapolation and correlation.
- + **ATPG Tool Study For The Industry:** ATPG increase the product quality with generated test vectors for high defect detection. Different tools such as FastScan and TetraMax tool used in the industry have been studied.
- + **Energy Consumption in Reversible Logic Circuits:**This project involved the design of digital logic gates/circuits; study the energy consumption by these circuits and compare it's effectiveness with the traditional static CMOS gates/circuits. To achieve the goal of this project, a number of basic gates were designed using Cadence's digital design tools. These gates were used as basic building blocks to design 4-bit and 16 bit Carry-lookahead adder circuits in Reversible as well as static CMOS circuits topologies. The study of energy consumption demonstrated that there was 78 – 79% reduction in the energy consumption in reversible circuits compared to static CMOS circuits.
- + **Standard Cell Based Digital Circuit Design Methodology:** As an integrated part of a sequence of two Digital IC Design courses, several static CMOS gates, and small circuits (e.g. Full adder, D-Latch, 5-bit adder/subtractor, Serial shift Parallel load registers) were designed using Cadence design tools. Apart from this, layout design of individual standard cells and P&R of circuits were also performed using Cadence back-end tools. Full datasheet was also prepared for each standard cell. The objective was to learn and follow the Standards cell based digital IC Design methodology.

INVITED SPEAKER

- + Technical resources training procurement evaluation of CUET Incubation Project-2018-2020
- + Technical Expert Member of Bangladesh High Tech Park Authority (BHTPA), ICT Bhaban, Agargaon, Dhaka
- + Technical Expert Member of ICT Ministry Innovation Projects (ICT Division), ICT Bhaban, Agargaon, Dhaka
- + Expert Member of Ministry of ICT and Telecommunication Industry
- + Potential Input of current ICT Master Plan of Ministry of Higher Education
- + Meeting as a Chair Fourth Industrial Revolution (4IR) for Leveraging ICT Project, ICT Bhaban, Agargaon, Dhaka
- + Potential technology driven input (Higher Education and Skills) in upcoming World Bank Higher Education Acceleration& Transformation (HEAT) Project, UGC, MoE
- + Meeting as a Chair in UGC, Industry and Academy partnership issues for all professional, UGC, MoE
- + Meeting as a Chair in UGC, University Ranking formula activities contents for Public, Private University Professors (Head/ Chair of CSE) and World Bank Team, UGC
- + Meeting as a UGC Member in UGC, ADB CSE Incubation Project for four Universities, UGC
- + Delivered a talk on “Quantum Computer” in October 27, 2009, at Institute of Engineers, Chittagong, Bangladesh

- + Delivered a talk on “Why Quantum Computer” in June, 2007, at Portland State University, Oregon, USA.

STUDENT SUPERVISION

- + Current PhD Student: Md. Alamgir, Information Technology, Open University of Malysia.
- + More than hundred undergrad students completed their thesis/project for their partial fulfillment of the B.Sc. degree in Computer Science & Engineering.
 - IOT & Urban security in photo-types Smart City environments
 - Internet of Things and Big Data Analytics for Smart and Connected Communities Gulshan Areas, Dhaka
 - Waste Dhaka city Management (IOT) (Mirpur Area’s), Dhaka
 - Secure IoT photo-types Data Management for Smart Dhaka Cities
 - A Unified Semantic Engine for Internet of Things and Smart Cities: From Sensor Data to End-Users Applications (Photo types) (Industry Funded)
 - An Information Framework of Creating a Smart City through Internet of Things (small area’s in Dhaka)
 - Assessing Performance of Internet of Things-based Mobile Crowdsensing Systems for Sensing as a Service Applications in Smart Cities (Industry Funded)
 - Internet-of-Things-Based Smart Cities: Recent Advances and Challenges (Photo types)
 - Photo-type Efficient Energy Management for the Internet of Things in Smart Cities
 - Photo type Cloud-Based Smart-Parking & Parking Guidance System & IOT
 - An IoT testbed for the Software Defined City vision (Gulshan Area’s of Dhaka)
 - The advantages of IoT and Cloud applied to Smart Cities
 - Internet of Things, Crowdsourcing and Systemic Risk Management for Smart Cities and Nations
 - Hybrid Approach for Mobile Couriers Election Invisilation System in Smart-cities & IOT
 - An IoT based Chittagong University bus monitoring system Photo-types
 - A Multi-Sensory Dataset for the Vehicular CPS Applications
 - Integrating Connected Vehicles in Internet of Things Ecosystems: Challenges and Solutions (Photo types)
 - Analysis of Road Traffic Fatal Accidents Using Data Mining Techniques (Photo types)
 - Traffic Flow Prediction with Big Data: A Deep Learning Approach
 - A Systematic Review on Educational Data Mining
 - Active learning explored in Open elective course: Internet of Things (IoT)
 - Internet of Things Promoting Higher Education Revolution
 - IoT based Power Efficient System Design using Automation for Classrooms
 - A Survey on Wireless Security: Technical Challenges, Recent Advances, and Future Trends
 - Proposed Embedded Security Framework for Internet of Things (IoT)
 - Security and Privacy in the Internet of Things: Current Status and Open Issues
 - Internet of Robotic Things: Concept, Technologies, and Challenges
 - Uploading and Replicating Internet of Things (IoT) Data on Distributed Cloud Storage

- Big Data Management System (Data is value)
- Proposal for the Theme on Big Data Analytics
- Big Data and Official Statistics EU (European Union)
- Hadoop-a-perfect-platform-for-big-data-and-data-science
- Design of Proxy Server on Java
- Modeling Wireless Network with Asynchronous VLSI
- VLSI Design and Logic Synthesis with Technology Mapping
- Online Office Management System

TAUGHT COURSES

- Introduction to Quantum Computer
- VLSI Design
- Mathematics for Life
- Engineering Mathematics
- Finite Automata and Computation Theory
- Computer Communications and Networks
- Data Communication and Computer Networks
- Telecommunication
- Computer Network Management
- Management Information System
- Web Application and Internet
- Digital Image Processing
- Artificial Intelligence
- Digital Signal Processing
- Programming C

MEMBERSHIPS

SOCIAL

- + Central Council Member, Institution of Engineers Bangladesh (IEB), 2015-2017
- + Executive Member, BangabandhuProkausholeePorishod (BPP),2013-2016
- + Chairman and Founder, Alternative and Sustainable Energy Foundation Bangladesh
- + Elected Joint Secretary General, Central Governing Body, Old Faujian Association, 2011-2012
- + Science and Technology Secretary, CUET Ex-Student Association, 2011-2012
- + Member, Energy Action Coalition, USA
- + Power Shift 09 Conference, February 27th to March 2nd , Washington D.C. USA
- + Member, Cadet College Club, Dhaka, Bangladesh

BEHAVIROL

- + Hardworking, confident and efficient in time management.
- + Self motivated, willing to learn and adapt to tasks and situations.
- + Can work as part of a team or independently with sincerity.

- + Good in analytical and perceptual skills.

LANGUAGES

- + Bengali - Mother Tongue
- + English –Fluent
- + Russian - Moderate

HONOURS AND AWARDS

- + Achieved the BOARD AWARD for securing the Star Marks in the combined merit list in SSC 1984 and HSC 1986.
- + Talent Pool Merit Scholarship at all levels in school and college.
- + International Islamic University Chittagong PhD Fellowship (2005 – 2008)
- + Moscow Technical University Undergraduate Scholarship (1991 – 1994)

INTERESTS

- + I have been very actively participating in all activities of VISION-2021 FOURM with an aim to build hunger free, poverty free Bangladesh by 2021.
- + I am keen to develop international relationship with other countries to realize our lifelong dream Sonar Bangla.
- + I am keen to organize an International Math Olympiad(IMO) in Bangladesh.
- + I am actively engaged in ULAB Social welfare club where providing support to flood affected people, providing cloths to poor people etc.
- + Along with my some of students I teach basic IT skills to homeless children in Dhaka city
- + I regularly organize Lego Robotics training session for high school students in weekends.
- + Volunteering in International Symposium on Low Power Electronics and Design (ISLPED' 07) Conference, Portland, Oregon.
- + Volunteering Robotics Club, Portland State University, Oregon, USA.
- + Volunteering Multnomah Community Health Center, Oregon, USA
- + Volunteering for conducting seminars and tutoring sessions on Orcad PSPICE in undergraduate IEEE certified technical event, Portland, Oregon, USA.
- + Volunteering for Kids Bangla School, Oregon, USA
- + Hobbies include Hiking, Volunteering, Stamp collection, Traveling, Swimming, Reading, and Music.

POLITICAL EXPOSURE/

ACKNOWLEDGEMENT

My almost 35 years of political career not only helps to active in the politics for the cause of liberation war but also it facilitates me to develop other important attributes of life, which is necessary to present an activist of liberation war in front of the people in a very positive way. Most important of such attributes include leadership quality, management and administrative skills, negotiation ability as well as dispute resolution skills. My study

in the area of engineering starting from undergraduate to doctoral level, almost in the country like Russia and USA, helps me to obtain clear communication and excellent representation skills, which is necessary to achieve certain goal of a country when once is engaged in a critical dialogue with his counterpart. This can be well utilized to maintain and build good diplomatic relationship with other countries of the world. Since my political background is motivated by the spirit of liberation war, I should always be positive mind in communicating and representing an inspirational Bangladesh. My educational background with the highest degree should provide me the necessary skill to achieve such aspiration of the country. Such a combination of both political and technical knowledge is really rare now-a-days, which can be considered as unique. I have substantial knowledge on Russia, its people and its culture as well as I can speak Russian fluently. These in turn could play an important role to create dynamism in the present relationship between Russian and Bangladesh. Moreover, since I was involved in doing technical and knowledge-based business during my stay in Russia (for about ten years), I better understand how to do trade and develop investment policy with this country. Moreover, I did both my M.S. and PhD from USA and spent more than seven years there in pursuing these degrees. Hence, I have vast knowledge on the American culture, society, business, politics and education. Naturally, my fluency in English both writing and speaking should be considered unparalleled. A person with experienced of the education, culture, politics and business of two super powers in the world should be considered as an asset of a country. If his skilled is underutilized, eventually the country will lose in the long run. In addition, my PhD in the area of quantum computing is considered to be shaped the world civilization in the near future. It is considered as the main work horse behind the evolving Fourth Industrial Revolution (4IR), where we shall see the application of Artificial Intelligence, Robotics, Smart City, Smart Home, Smart Energy Grid, Clean Technology, Embedded Systems, Internet of Things (IoT) to take the present digital revolution into a new state. Such a person should be picked to lead the country's digital revolution in various places since Digital Bangladesh is not only limited to providing digital services to the people but it is related to prepare the country for the Fourth Industrial Revolution (4IR). In my view, 4IR will turn the country into a reach one as we have planned to be in 2041.

So, the total 26+ years of extensive working experience in domestic and international field including Bangladesh, USA and Russia that I belongs political carriers are as follows :

- **Central Council Member**, Institution of Engineers Bangladesh (IEB), 2015-2017
- **Member**, Sub-Committee of Election Observer, Bangladesh Awamileague, Bangladesh National Election-2018
- **Member**, Sub-Committee of Information and Communication Technology, Bangladesh Awamileague, Bangladesh National Election-2018
- **Executive Member**, Bangabandhu Prokasholee Porishod (BPP), 2013 -
- **Founder Organizing Secretary**, Bangabandhu Memorial Institute, Chittagong, 1986-1991
- **General Secretary**, Bangladesh Chattra League, Chittagong Engineering University and Technology (CUET), 1990-1991
- **Organized movement to restore Democracy in Bangladesh**, Oregon, USA, 2006-2008

- **Thesis Supervisor for PhD(IT)**, Open University Malaysia.
- **Chairman and Founder**, Alternative and Sustainable Energy Foundation Bangladesh, *2011-present*
- **Secretary General**, Central Governing Body, Old Faujian Association (Ex-Cadets of Faujdarhat Cadet), *2011-2012*
- **Science and Technology Secretary**, CUET Ex-Student Association, *2011-2012*
- **Adviser**, IT Division, University of Liberal Arts Bangladesh (February 2010 – 2019)
- **Expert Member**, Tender Evaluation Committee, Specialized LAB, ARVR LAB, Course Curriculum Committee, Specification Committee, IOT LAB, SDKHTTP Project (Installation of Internet of Things LAB), BHTPA, ICT Ministry. 2016- present
- **Adviser**, Bangladesh Innovation Forum, <http://www.bif.org.bd/>
- **Co-Founder**, Data Science Bangladesh, <http://datasciencebd.org/>
- **Convener**, Job Fair 2003, Chittagong, Bangladesh