

Md Nazmul Hossain

Senior Software Developer & Technical Lead
MSc Applied Modelling & Quantitative Methods
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SUMMARY

Senior .NET developer and technical lead with 10+ years designing, building and integrating enterprise systems in C#, .NET Core and SQL Server on Azure and AWS. Led teams of 8 to 10+ developers delivering event-driven microservices on AKS, integrated through Azure API Management, Service Bus, Event Grid, Functions and Logic Apps, with Azure DevOps CI/CD, OWASP practices and third-party VAPT. Recent work covers LLM and agentic systems on AWS Bedrock and the Model Context Protocol (MCP), plus an MSc (4.00 CGPA) on automating CI/CD migration to GitHub Actions with LLMs, published in *Empirical Software Engineering*. Comfortable owning the full lifecycle, from requirements and architecture through deployment, support and mentoring.

TECHNICAL SKILLS

Languages: C#, TypeScript, JavaScript, SQL, Python, Java, PHP, C, C++

APIs and Integration: Azure API Management, Service Bus, Event Grid, Azure Functions, Logic Apps, REST, GraphQL, gRPC, SignalR, Kafka, RabbitMQ, EMQX

AI and LLMs: AWS Bedrock, Model Context Protocol (MCP), GPT-4, Open-source LLMs, Unsloth, LangGraph, Agentic workflows

Databases: SQL Server, PostgreSQL, MySQL, MongoDB, Redis, DynamoDB, Cosmos DB

Web Dev Tools: HTML, CSS, Bootstrap, Angular, Angular Material, React, ASP.NET, ASP.NET CORE

Cloud and DevOps: Azure (AKS), AWS (EKS), Docker, Kubernetes, Azure DevOps, GitHub Actions, Terraform, Jenkins

Security: OWASP secure development, third-party VAPT coordination and remediation

Architectural Paradigm: Microservices, Three/N Tier, Broker Pattern, CQRS, Mediator, Hexagonal

Project Management: Azure DevOps, Jira, Trello, Asana

Tools: Visual Studio, Visual Studio Code, SSMS, Codeblock, Netbeans, Eclipse, PyCharm, OriginPro

EXPERIENCE

•Graduate Research Assistant

January 2025 to May 2026

Trent University

Peterborough, ON, Canada

- Projects: CIGRATE, CIPilot - LLM-based CI/CD pipeline migration frameworks.
- Technologies: Python, C#, Unsloth, GPT-4, Open-source LLMs, GitHub Actions, Travis CI, CrystalBLEU, Cosine Similarity, 10-fold Cross-Validation.
- Researched and developed CIGRATE and CIPilot, LLM-based frameworks for automating CI/CD pipeline migration from Travis CI to GitHub Actions.
- Designed and implemented the migration framework architecture, integrating GPT-4 and open-source LLMs across zero-shot, few-shot, and fine-tuned settings.
- Evaluated model performance using CrystalBLEU and Cosine Similarity metrics, validated against 153 open-source projects with 10-fold cross-validation.
- Integrated automated syntax validation and usability checks to assess production readiness of generated CI/CD configurations.
- Published the research in *Empirical Software Engineering* (EMSE) and released CIPilot as a browser extension with a web portal (cipilot.com).

•Senior Executive Product Manager (Technical)

April 2024 to December 2024

Surbana Jurong Pte. Ltd.

Singapore

- Projects: 4+ Main project(s), 2 Sub-Projects
- Technologies: C#, .NET Core, Python, AWS Bedrock, MCP, LangGraph, AWS/Azure, Angular, SQL Server, Microservices, Kubernetes (AKS and EKS), Docker, Kafka, EMQX, RabbitMQ, gRPC, GraphQL.
- Led the technical build of a multi-tenant conversational AI platform for several Town Council clients, including a multilingual voice layer (speech-to-text, text-to-speech) and a PDF knowledge-base ingestion pipeline with per-page image detection for cost-efficient routing.
- Led the Intelligent Email Management System (IEMS), an LLM-based email processing platform on AWS Bedrock.
- Built Smart City GenAI agents that use the Model Context Protocol (MCP) to connect LLMs to IoT data and tools for conversational analytics.
- Traced AWS cost overruns on a Bedrock-heavy account to their main drivers: EKS scaling, an hourly-billed Bedrock resource and DocumentDB.

- Worked with platform and DevOps teams to define CI/CD strategies and migration paths for microservices-based systems, improving deployment reliability and developer productivity.

•Technical Lead

January 2022 to March 2024

Surbana Jurong Pte. Ltd.

Singapore

- Projects: 4+ Main project(s), 3 Sub-Projects
- Technologies: C#, .NET Core, Angular, SQL Server, Microservices, Kubernetes (AKS and EKS), Docker, Azure API Management, Service Bus, Event Grid, Azure Functions, Logic Apps, Kafka, EMQX, RabbitMQ, gRPC, GraphQL.
- Responsibilities: Led a team of 10+ developers in designing and implementing software solutions using modern cloud-native architectures. Ensured alignment with business goals and adherence to best practices in software development and delivery, mentoring developers through design and code reviews.

•Technical Lead

Feb 2017 to Dec 2021

S3 Innovate Pte. Ltd.

Singapore - Remote

- Projects: 4+ Main project(s), 6 Sub-Projects
- Technologies: C#, .NET Core, Azure Cloud Services, AWS, Angular/AngularJS, SQL Server, RESTful APIs.
- Responsibilities: Guided a team of 8 members in developing and executing technical strategies for various projects, leveraging cloud technologies and modern web frameworks to deliver scalable and efficient solutions.

•Team Lead: IT B2B & Operations

April 2015 to January 2017

VU Mobile Ltd.

Banani, Dhaka

- Projects: 2 Main project(s), 4 Sub-Projects
- Technologies: C#, ASP.NET WebForms/WinForms/WPF, ASP.NET MVC, SQL Server, Value Added Services.
- Responsibilities: Led the IT B2B and operations team in developing business-to-business solutions. Enhanced operational efficiency through the implementation of robust IT services and integration with business processes.

•Senior Software Engineer

January 2014 to March 2015

Vintage IT Limited

Uttara, Dhaka

- Projects: 2 Main project(s)
- Technologies: C#, ASP.NET WebForms/WinForms, ASP.NET MVC, SQL Server, AngularJS, JavaScript, jQuery.
- Responsibilities: Contributed to design, coding, and testing of web applications, ensuring high-quality software delivery using Microsoft and JavaScript ecosystems.

•Software Engineer

Jan 2012 to Dec 2013

Vintage IT Limited

Uttara, Dhaka

- Projects: 1 Main project
- Technologies: C#, ASP.NET WebForms/WinForms, ASP.NET MVC, SQL Server, JavaScript, jQuery.
- Responsibilities: Involved in the development of a web application focusing on both front-end and back-end development. Collaborated with senior engineers to refine coding practices and enhance software quality.

•Volunteer and Member

Jan 2010 to Present

Bangladesh Open Source Network (BdOSN)

Dhaka, Bangladesh

- Role: Member
- Responsibilities: Contributed to community projects promoting open-source technologies. Engaged in collaborative development and knowledge sharing within the open-source community.

EDUCATION & ACHIEVEMENTS

•Master of Science in Applied Modelling & Quantitative Methods

Jan 2025–May 2026

Trent University, Canada - Research: Automating CI/CD Pipeline Migration with Agentic AI and LLMs

CGPA: 4.00/4.00

•Bachelor of Science in Computer Science and Engineering

2010–2014

Jagannath University, Bangladesh

CGPA: 3.60/4.00

•International Contest on Programming and System Development (ICPSD)

2014

GreenTech Institute of Business & Science (GIBS)

Runner-Up

•Code Warrior Challenge

2014

Web Track .NET

Runner-Up

•Project Competition ITRRC-HEQEP

2014

Jagannath University

Runner-Up

CERTIFICATIONS

•Project Management Professional (PMP)®

Project Management Professional (PMP)® certification - 2024

•AWS Solutions Architect

AWS Certified Solutions Architect - Associate certification - 2023

•Deploying AI

Deploying AI - Microcredential (University of Toronto) - 2026

•AI4I® - Literacy in AI

AI for Industry® - Literacy in AI certification - 2023

•Scrum Product Owner

Professional Scrum Product Owner™ I (PSPO I) certification - 2026

•Scrum Master

Professional Scrum Master™ I (PSM I) certification - 2022

NOTABLE PROJECTS / R&Ds

•Commuter Facility Equipment Monitoring Services (CFEMS)

Surbana Jurong Pte. Ltd. as Technical Lead Developer, Singapore

- Tools: C#, .NET Core 8.0, Angular 20, Figma, Microservices, GraphQL, Kubernetes, EMQX, SQL Server, SignalR, DDD, CQRS, Azure API Management, Service Bus, Event Grid, Azure Functions, Logic Apps, Azure DevOps for CI/CD, Prometheus and Grafana for monitoring, OWASP security practices.
- Responsibilities: Led the team (C#, .NET Core) for requirement analysis, design, and development. Designed and deployed microservices architecture using Docker and Kubernetes in Azure; set up Azure DevOps pipelines for continuous integration and delivery; ensured security compliance following OWASP guidelines.
- Integration: Built integrations on Azure Integration Services, using API Management for published APIs, Service Bus and Event Grid for messaging and events, and Azure Functions and Logic Apps for event processing and workflows.
- Description: Monitors commuter facility equipment in a 24/7 manner and reports anomalies to respective departments while managing maintenance schedules in a smart and user-friendly way.

•REDAS-IDD

Surbana Jurong Pte. Ltd. as Technical Lead Developer, Singapore

- Tools: C#, .NET Core 6.0, Power BI, Azure Cloud Services, REST, SQL Server, Single Page Application (SPA), Angular 12.
- Responsibilities: Tech Lead (C#, .NET Core, Power BI), design and development, deployment on Azure; set up Azure DevOps pipelines for CI/CD; implemented OWASP standards and coordinated successful third-party VAPT testing.
- Description: Provides common dashboards for developers and stakeholders to visualize data trends and insights using Power BI.

•Sustainable Building Network (SBN)

S3 Innovate Pte. Ltd., Singapore

- Tools: C#, .NET Core, Azure Cloud Services, REST, SQL Server, Single Page Application (SPA), AngularJS.
- Responsibilities: Tech Lead (C#, .NET Core), development, and deployment on Azure.
- Description: Centralized building management platform for monitoring chiller and ACMV systems, detecting anomalies in efficiency, and monitoring utility consumption and indoor air quality.

•Microservice Project Architecture - Generic IoT Skeleton

Personal

- Purpose: Designing an IoT solution architecture considering scalability, observability, and long-term product evolution using microservices and cloud-native patterns.
- Link: [Microservice Project Architecture - Generic IoT Skeleton](#)

CONFERENCES AND COURSES

[Microservices Observability, Resilience, Monitoring on .Net, Mehmet Ozkaya, udemy.com](#)

[Azure Government on Commercial Cloud \(GCC\) 2.0 Partner Briefing Session, Microsoft Singapore, 2023](#)

[AWS Government on Commercial Cloud \(GCC\) 2.0 Partner Briefing Session, AWS Singapore, 2023](#)

[AWS EKS Kubernetes-Masterclass | DevOps, Microservices, Kalyan Reddy Daida, udemy.com](#)

[Deploying .Net Microservices with K8s, AKS and Azure DevOps, Mehmet Ozkaya, udemy.com](#)

AREAS OF INTEREST

Software System Design and Architecture, IoT Based Software Solution in Industrial Automation, Cloud and DevOps Engineering, Data Science and Machine Learning, IoT Connectivity Protocols, Energy Efficiency and Sustainability, Smart Cities and Urban Planning, Security and Privacy, Geospatial Data, Cross Platform applications, Community Involvement, Blogging, Swimming, Playing Badminton, Football, Chess.