



Md. Abu Ammar

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About Me

I build production systems where backend engineering meets applied machine learning. At **Partners Online (Bangladesh & UK)** I lead Web & App Development for Partners.com.bd — a **.NET Clean Architecture API**, three **Flutter** apps, and a zero-downtime **MVC → API strangler migration** that I designed and run end to end. Before that, at **Masjid Solutions** (remote, US-based), I built the wallet and ACH stack (**Apple Pay**, **Google Pay via Stripe**, **Authorize.Net ACH**) on a donation platform moving millions of dollars a year for **20,000+ users**, and built **KioskVisionAI**, which watches **200+ donation kiosks across 60+ U.S. organizations** with .NET Aspire and Azure Vision AI — every product line shipping through CI/CD I architected, **7–8 production deployments a week**. The research thread runs in parallel: my B.Sc. thesis explored **quantum machine learning** (variational circuits, encoding methods, hybrid classical-quantum models), continuing through my MS with Bangla NLP via knowledge distillation, multi-output CNNs, and ensemble methods.

Education

North South University <i>Master's of Science in Computer Science and Engineering</i> • Relevant Coursework: Distributed Database, Robotics, Computer Vision, Advanced Computer Architecture, Computer Network and Security, Wireless Communication, Bio-Informatics	Jan 2023- Expected November 2026 Dhaka, Bangladesh
North South University <i>Bachelor's of Science major in Computer Science and Engineering, minor in Mathematics (CGPA: 3.58 / 4.00)</i> • Relevant Coursework: Data Structures and Algorithms (C++), Prob & Stat in CS, Machine Learning, Linear Algebra, Deep Learning, NLP, Database	May 2018- Sep 2022 Dhaka, Bangladesh
Milestone College <i>Higher Secondary School Certificate (GPA: 5.00 / 5.00)</i> • School of Science	2015-2017 Dhaka, Bangladesh
Tamirul Millat Kamil Madrasah <i>Dakhil or Secondary School Certificate (GPA: 4.72 / 5.00)</i> • School of Science	2013-2015 Dhaka, Bangladesh

Publications & Theses

Machine Learning In The Realm Of Quantum: The State-Of-The-Art, Challenges, Future Vision and Applications Of It 2022 • Md. Abu Ammar, Sadia Afrin Tamanna · B.Sc. thesis (CSE499), North South University · supervised by Dr. Mahdy Rahman Chowdhury	
Bangla POS Tagging Using Supervised Learning and Knowledge Distillation • Md. Abu Ammar, Sadia Afrin Tamanna · Directed research (CSE498), North South University · supervised by Dr. Nabeel Mohammed	2022
Deep Learning-Based Blood Cell Detection in Microscopic Images for Enhanced Disease Recognition with RetinaNet 2023 • Md. Abu Ammar, Sadia Afrin Tamanna · Graduate coursework (CSE583, Digital Image Processing), North South University	
Exploring New Attack Patterns in Computer Networks through Anomaly Detection and Knowledge Distillation • Md. Abu Ammar, Sadia Afrin Tamanna · Graduate research report, North South University	2023

Experience

Partners Online (Bangladesh & UK) <i>Operation Manager, Web & App Development</i> • Own the platform behind Partners.com.bd — Bangladesh's marketplace + business-social platform expanding into the UK — end to end: backend architecture, database, cloud infrastructure, deployment, scalability, and security across BD and UK operations. • Cut detail-page round trips from 3–4 to 1 (~70% fewer) by leading the legacy MVC → API strangler migration to a Clean Architecture .NET API — retiring the monolith with zero downtime while three Flutter apps (General, Executive, City) ship on top of it.	March 2026 – Present Dhaka, Bangladesh—Remote
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- Closed the double-settlement money-loss path **by construction**: one generic payment ledger serving every paid feature, a vendor-agnostic **IPaymentGateway** abstraction with country-aware resolution, and a self-healing settlement coordinator backstopped by Hangfire reconciliation.
- Made background work crash-safe — **no job silently lost or double-run** — with a transactional **SQL outbox + dedicated Hangfire worker**, dead-letter queue, idempotency keys, and least-privilege SQL principals.
- Bounded CDN storage cost structurally with an **async image pipeline** whose server-owned lifecycle guarantees every orphaned upload is swept without client cooperation; open-sourced the team's document-driven agent workflow as the **d3 Claude Code** skill.

Masjid Solutions

Software Engineer

December 2023 – May 2026

Indianapolis, Indiana, USA—Remote

- On the team behind a donation platform moving **millions of dollars a year for 20,000+ users**, built the wallet-payment stack end to end — **Apple Pay / Google Pay via Stripe Payment Intents**, tokenized flows that improved mobile donation conversion — plus **Authorize.Net ACH** one-time and recurring billing.
- Closed the loop on payment operations: reporting and alerting, an **automated failed-payment alert system** that surfaces silent recurring failures, and scheduled **donation summaries delivered to admins and configured roles**.
- Cut onboarding time for new schools and memberships by **60%** with automated **data-import pipelines** transforming raw Excel into validated SQL Server schemas, and built **custom membership-registration forms** organizations configure themselves.
- Architected CI/CD for **every product line** (Bitbucket, Jenkins, IIS): **7–8 zero-downtime production deployments a week** (350+ a year), dev environments cycling 20+ deploys weekly, all on rollback-ready backup strategies.
- Put **200+ donation kiosks across 60+ U.S. organizations** under intelligent watch by building **KioskVisionAI** — a distributed **.NET 9 Aspire** app on Azure (**Blob Storage, Queues, Vision AI**) with GitHub Actions continuous delivery.
- Improved support response time with a **Remote Kiosk Device Management System**: REST APIs for live health (battery, Wi-Fi, uptime) and remote control (reboot, screenshot).
- Eliminated manual CRM entry by building an automated **Salesforce synchronization platform** — daily jobs, custom field mappings, retries, error recovery — and improved donor data quality by merging duplicates via **Twilio Lookup** enrichment.
- Engineered across **.NET (MVC & Core), SQL Server, Dapper, LINQ, Entity Framework**; contributed to the **monolith-to-microservices migration** with **Clean + Onion** architecture and domain-driven principles.

Masjid Solutions

SQA Engineer

October 2023 – November 2023

Indianapolis, Indiana, USA—Remote

- Reduced regression bugs by **30%** on a critical module by building a data-driven UI automation suite (**C#, NUnit, Selenium, Serilog, Extent Reports**) running in Jenkins CI — CSV-driven cases widened coverage without new code per scenario.

A1QA Pure-play software testing company

QA Automation Engineer

November 2022 – July 2023

Colorado, USA—Remote

- Shipped automated regression and priority-based test suites run on every build/release — **TestNG + Maven + Selenium WebDriver** with CSV-driven data testing.

Technical Skills

Programming: C, C++, C#, Java, Python, SQL, JavaScript, Bash, Assembly, $\LaTeX$.

Backend/Frameworks: .NET Core, ASP.NET MVC, .NET Aspire, Django, Entity Framework, Repository Pattern, Clean/Onion Architecture, Dapper.

Frontend Development: Razor page, HTML5, CSS3, JavaScript (ES6+), Vanilla JS, Alpine.js

AI/ML Frameworks: PyTorch, TensorFlow, Scikit-learn, Hugging Face, Pandas, Numpy, Seaborn, Matplotlib.

Quantum Computing & QML: IBMQ, Pennylane, Qiskit (basics), Variational Quantum Circuits, Quantum Machine Learning (Encoding Methods, Hybrid Classical-Quantum Models).

DevOps & Cloud: Jenkins, Bitbucket Pipelines, GitHub Actions, IIS, **Azure Developer CLI (azd)**, Azure (Functions, App Services, Blob Storage, Queues, Vision AI), PowerShell.

Payments & APIs: Stripe and AuthorizeNet, Twilio Lookup API, REST APIs, KLR Kiosk APIs.

Testing: Selenium, NUnit, TestNG, Aquality Framework, Postman, REST Assured.

Databases: Microsoft SQL Server, MySQL, PostgreSQL.

Tools: Git, GitHub, Bitbucket, Jupyter, Trello, Excel Automation, Jira.

Projects

KioskVisionAI (Cloud-Native .NET Aspire + Azure Vision AI)

- Developed a distributed application using **.NET Aspire**, leveraging its orchestration, observability, and service discovery features to manage multiple kiosk services at scale.
- Integrated Azure Vision AI, Blob Storage, and Queues for automated image analysis, metadata enrichment, and event-driven notifications.
- Implemented cloud-native deployment with **Azure Developer CLI (azd)** — first provisioning and deploying the application, then auto-generating GitHub Actions workflows for continuous delivery to Azure.
- Result: Achieved a streamlined DevOps pipeline with reduced manual configuration, faster deployments, and improved observability across microservices.

ACH Payment Integration Onetime and Recurring

- Implemented secure ACH payment workflows for donation kiosks and recurring billing using the Stripe and AuthNet API.
- Enhanced reliability, automation, and compliance in payment processing for U.S.-based mosque clients.

Remote Kiosk Device Management System

- Developed a web-based management portal to monitor and control kiosk devices in real time.
- Integrated REST APIs from KLR to provide device insights (battery, Wi-Fi, uptime) and remote commands (reboot, screenshot).

Data Import and Automation for School/Membership Onboarding

- Built automated SQL Server data pipelines to process and validate client Excel templates for school and membership data onboarding.
- Reduced onboarding time significantly while ensuring schema validation and consistency.

Machine learning in the realm of quantum: state of the art, challenges, future vision, and applications of it (Undergraduate Thesis)

- Overview: Outlined some recent works and different models of the quantum machine learning, and interprets classification tasks in the realm of Quantum with several encoding methods
- Used Programming Language: Python, Machine Learning Framework: PyTorch, Quantum Machine Learning Framework: PennyLane, IBMQ

Bangla Parts of Speech Tagging Using Supervised Learning and Knowledge Distillation

- Overview: Developed a machine learning model for Bangla parts of speech tagging, addressing data imbalance issues by employing a knowledge distillation approach. Utilized a decision tree model as a teacher and distilled its knowledge to a neural network student model, improving tagging accuracy and efficiency.
- Used Programming Language: Python, Machine Learning Framework: PyTorch, ScikitLearn, Hugging Face, BERT

Startups Success Prediction using Ensemble Classification

- Developed a machine learning model to predict the success of startups by analyzing various factors affecting their performance.
- Implemented multiple classification algorithms, including Adaboost, RandomForest, LGBM, Decision Tree, SVM, Extra Tree, and an Ensemble Voting Classifier.
- Evaluated and compared models to determine the most effective approach for accurate predictions.
- The project aimed to provide insights for entrepreneurs and investors to make data-driven decisions based on key startup attributes.
- Used Programming Language: Python, Machine Learning Framework and Libraries: ScikitLearn, Pandas, Matplotlib, Seaborn

Software Digitization Service

- Overview: Designed and developed a software solution to digitize and manage offline documents for the finance department, enabling centralized storage, easy access, and efficient retrieval of records. The project included a web application.
- Some Features:
 - * Supported digital conversion of paper documents and integration with existing and new users.
 - * Allowed users and administrators to upload, manage, and retrieve documents securely and efficiently.
 - * Integrated robust indexing and search functionality for quick access to digitized files.
- Role: Involved in software requirements specification (SRS), system design specification (SDS), and implementation.
- Used Programming Languages: Python; Frontend: HTML, CSS, JavaScript; Backend: Django; Database: MySQL

Age, Gender, and Race Estimation with Multi-Output CNN Architecture

- Overview: Developed a deep learning model using a multi-output Convolutional Neural Network (CNN) to estimate age, gender, and race from facial images. The project aimed to extract key demographic information, a crucial soft biometric trait for identification and demographic analysis.
- Challenges: Addressed the subtle variations in facial features caused by age, gender, and race differences, making the task more complex compared to other pattern recognition problems like object classification.
- Technologies: Deep Learning, Convolutional Neural Networks (CNN), Python, TensorFlow/Keras

REST API, Database, and Gmail API Testing with Rest Assured, SQL, and Aquality

- Overview: Developed comprehensive test suites to validate REST APIs, database operations, and Gmail API interactions. The project ensured robust testing of backend services, focusing on verifying API responses, data integrity, and seamless integration with third-party services.
- Technologies: Java, REST Assured, SQL, Aquality Framework, TestNG, Maven, Postman.

Steam Web App Testing with Selenium and TestNG

- Overview: Conducted extensive automated testing for the Steam web application to ensure a smooth user experience across different functionalities, including browsing, purchasing, and user account management.
- Technologies: Java, Selenium, TestNG, Maven.

UI Testing with Aquality Framework

- Overview: Automated UI testing for a complex web application using the Aquality framework, focusing on validating user interactions, responsive design, and overall system reliability.
- Technologies: Java, Aquality Framework, TestNG, Maven.