

Sadat Arefin Rafat

Senior Software Engineer

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PROFILE

Senior full-stack engineer with 3+ years architecting scalable microservices, distributed systems, and high-performance applications. Expert in .NET, Python/Django, React, Angular, and Blazor with deep knowledge of design patterns, system design, cloud infrastructure, and DevOps. Proven track record building enterprise-grade solutions, optimizing performance, leading teams, and delivering production systems from architecture to deployment.

SKILLS

Languages, Frameworks & Libraries: C#/.NET Core, TypeScript, Angular, Blazor WASM, Python, Django, FastAPI, Node.js, Flask, Entity Framework Core, Dapper, MediatR, React, Next.js, CapacitorJS, Ionic, TailwindCSS, RxJS, NgRx, Redux

Cloud & DevOps: Git, Azure (App Service, Functions, SQL, Service Bus, Container Apps), AWS (EC2, S3, Lambda, RDS), Nginx, Docker, Kubernetes, Terraform, Ansible, Azure Pipelines, GitHub Actions, CI/CD, Application Insights, Prometheus, Grafana, ELK Stack, Serilog, Distributed Tracing

Databases & Tools: SQL Server, PostgreSQL, MongoDB, Redis, ChromaDB, SQLite, Elastic Pool, Query Optimization, Indexing, Partitioning, RabbitMQ, Azure Service Bus, SignalR, WebSocket, gRPC, REST, GraphQL, Kafka, OAuth 2.0, JWT, Microsoft Entra SSO, RBAC, CORS, SQL Injection Prevention, XSS Protection

Concepts: Microservices, CQRS, Event Sourcing, DDD, Clean Architecture, Repository Pattern, Factory Pattern, Strategy Pattern, SOLID Principles, API Gateway, Service Mesh, Load Balancing, Caching Strategies, Rate Limiting, Eventual Consistency, CAP Theorem, Database Sharding, Horizontal Scaling

EXPERIENCE

Soft Robotics Limited

Senior Software Engineer

Nov 2025 – Present

- Developed Fintech and ERP systems using .NET and React.
- Utilized microservices architecture and implemented Docker and Kubernetes.
- Worked extensively with distributed systems.

Refactor Logic

Software Engineer (Contractual)

Aug 2025 – Oct 2025
Dhaka, Bangladesh

- Developed scalable business automation products with a focus on architecture and performance for Refactor POS, Refactor Finance, Refactor Intelligence and Refactor Academy.
- Architected microservices-based POS (RefactorPOS) using .NET, Angular/Ionic, PostgreSQL and SQLite, resulting in enhanced scalability and offline capabilities.
- Designed event-driven architecture via RabbitMQ for efficient order processing and inventory management.
- Built an offline-first system to process 10K+ daily transactions with robust conflict resolution.
- Developed a multi-tenant database strategy, supporting 50+ concurrent businesses.
- Established CI/CD pipelines with Azure DevOps, reducing deployment cycles to 20 minutes with automated testing.
- Led product planning, guided 4 junior engineers and achieved a 95% customer satisfaction rate during trials.
- Constructed a financial management platform (Refactor Finance) with Django REST and React, supporting multi-currency operations.
- Designed a double-entry bookkeeping system with ACID compliance, handling 50K+ transactions monthly.
- Integrated financial reporting, automated reconciliations, and real-time payment processing with gateways like SSLCommerz & Stripe.
- Built Refactor Academy's scalable LMS with .NET Core and Angular, supporting 1200+ users and featuring adaptive video streaming and real-time collaboration.
- Developed a content delivery pipeline achieving 99.9% uptime.

HawaliT Limited

Software Engineer

Aug 2023 – Jul 2025
Dhaka, Bangladesh

- Delivered 4+ enterprise applications for large Dutch manufacturer, focusing on performance and scalability
- Reduced Revit model sync time from ~25 min to ~5 min (80% improvement) through parallelization, delta sync algorithms, optimistic locking, and connection pooling
- Architected map editor handling 10,000+ components for Dutch municipality using Angular, Canvas API, and WebGL with quadtree spatial indexing
- Designed and deployed Azure infrastructure: App Service with auto-scaling (2-10 instances), SQL Elastic Pool with dynamic DTU allocation, Azure Functions for background jobs, Azure Repos for version control, Application Insights for APM
- Implemented Microsoft Entra SSO with conditional access policies and custom JWT authentication with refresh token rotation
- Optimized SQL queries achieving 20-30% speed improvement through index analysis, execution plan optimization, covering indexes, and stored procedure tuning
- Led migration from monolith to microservices architecture with API Gateway pattern reducing deployment coupling by 70%
- Mentored 3 junior developers with code reviews, pair programming sessions, weekly knowledge-sharing workshops
- Built True Orthophoto Generation pipeline processing 100GB+ image datasets with parallel batch processing
- Developed Camera Pose Estimation system using computer vision algorithms with Python and OpenCV
- Created Agricultural Geospatial Analysis tools with QGIS integration processing 50K+ hectare datasets

- Implemented RAG-based internal search POC with embeddings, vector similarity search using ChromaDB, and LangChain improving search relevance by 40%

EDUCATION

B.Sc in CSE

Islamic University of Technology

Research: Image and Video Super Resolution with Deep Learning

Jan 2019 – May 2023

Gazipur, Bangladesh

PROJECTS

Textile Fabric Weave Detection Automation Automated quality control system for textile manufacturing using deep learning computer vision Technologies: Python, TensorFlow, PyTorch, FastAPI, OpenCV, Docker, React • Developed CNN-based classification model achieving 97% accuracy on 12 fabric weave patterns • Built real-time detection pipeline processing 30 FPS from industrial cameras with <100ms latency • Created REST API with FastAPI serving 1000+ requests/minute with auto-scaling Docker containers • Designed annotation tool with React for data labeling reducing annotation time by 60%	Dec 2025
Financial Analysis Copilot AI-powered financial analysis assistant with natural language query interface Technologies: Python, LangChain, OpenAI GPT-4, Streamlit, PostgreSQL, RAG • Implemented RAG system with vector embeddings for financial document retrieval from 10K+ reports • Built multi-agent system orchestrating specialized agents (data analysis, visualization, reporting) • Created financial chart generation with Plotly supporting 15+ chart types and custom styling • Designed conversation memory system with PostgreSQL maintaining context across sessions • Achieved 85% accuracy on complex financial queries through prompt engineering and fine-tuning	Dec 2025
Refactor Pay Digital payment gateway with fraud detection and multi-currency support Technologies: .NET, PostgreSQL, Redis, Kafka, React, Docker, Kubernetes • Architected distributed payment processing system handling 5K+ TPS with 99.99% uptime • Implemented saga pattern for distributed transactions ensuring eventual consistency • Built real-time fraud detection with rule engine and ML-based anomaly detection scoring transactions in <200ms • Created webhook delivery system with retry logic and idempotency handling 50K+ webhooks daily • Designed admin dashboard with React displaying real-time metrics and transaction monitoring	Dec 2025
BizOps Central Multi-industry business management platform with inventory, POS, reporting, and tenant management Technologies: .NET, Blazor, MAUI, Azure SQL, Entra (Azure AD), Mapbox, Stripe • Built modular architecture supporting retail, property rental and restaurant management workflows • Implemented role-based access control with Azure AD B2C supporting 100+ concurrent tenants • Created real-time reporting dashboard with SignalR pushing live sales metrics every 5 seconds • Designed payroll system with tax calculation engine supporting multiple jurisdictions	Feb 2024
Khuchra Workers Freelance marketplace connecting clients with micro-task workers and volunteers Technologies: .NET, Angular, Firebase Auth, PostgreSQL, RabbitMQ, Docker, Stripe • Architected three separate SPAs (client, worker, admin) with shared component library • Built real-time chat with SignalR supporting 500+ concurrent connections with message persistence • Implemented job matching algorithm with location-based filtering and skill matching • Created payment escrow system with Stripe Connect handling milestone-based releases	May 2025
Crime Vision Toolkit Law enforcement AI toolkit for video analysis and evidence processing Technologies: Flutter, Flask, PyTorch, OpenCV, YOLOv8, Deep SORT, Docker • Integrated pre-trained models for real-time object detection, license plate recognition with 92% accuracy • Built person tracking system with Deep SORT maintaining identity across frames with 85% MOTA score • Implemented crowd analysis with density estimation and anomaly detection for surveillance footage • Created 3D scene reconstruction pipeline from drone footage using SfM and MVS algorithms • Designed ballistic trajectory analysis tool with physics simulation and visualization	Jan 2023
Campus Launch Platform for student organizations managing events, memberships, and sponsorships Technologies: Next.js, ChakraUI, Prisma, Strapi CMS, MongoDB, SSLCommerz • Built headless CMS architecture with Strapi supporting custom content types and workflows • Implemented multi-tenancy with custom domains using dynamic routing and subdomain parsing • Created event management system with ticket booking, QR code generation, and attendance tracking • Designed sponsorship module with package management and invoice generation	Aug 2022