

Ehsan Ghafourian

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Summary

Software developer with experience building, supporting, and modernizing database-driven web applications using C#, ASP.NET, ASP.NET Core, SQL Server, and REST APIs. Experienced in production support, troubleshooting, legacy system upgrades, and integrating enterprise platforms. Strong background in translating business needs into reliable technical solutions, maintaining production systems, and documenting workflows for long-term support. Currently pursuing a Ph.D. in Computer Science at Iowa State University.

Technical Skills

- **Languages:** C#, SQL, JavaScript, Python, Java, PHP
- **Frameworks and Web:** ASP.NET MVC, ASP.NET Core, .NET 8, REST APIs, HTML5, CSS3, Bootstrap, JSON
- **Databases:** Microsoft SQL Server, relational schema design, indexing, query optimization, stored procedures, ETL pipelines, staging and production data synchronization
- **Enterprise Development:** legacy application modernization, API integration, data transformation, ETL workflows, production support, troubleshooting, technical documentation, requirements gathering
- **Cloud and DevOps:** Azure DevOps, GitHub Actions, CI/CD pipelines, automated build and deployment
- **Development Practices:** SDLC, Agile, Scrum, code reviews, debugging, testing
- **Tools:** Visual Studio, VS Code, Postman, Git, Jira, SSMS
- **Deployment:** Windows server environments, IIS, production application support

Industry Experience

- **Iowa Department of Transportation (Iowa DOT) – Ames, IA** October 2023 – Present
Application Developer (Internship/Co-Op)
 - Built, enhanced, and supported internal web applications and backend services using C#, ASP.NET MVC, ASP.NET Core, SQL Server, and REST APIs.
 - Collaborated with business stakeholders to translate operational needs into technical solutions, troubleshoot issues, and deliver well-documented systems.
 - Supported production systems through debugging, SQL analysis, integration maintenance, and application updates.
 - **EEL Signup Application – Full-Stack Web Application (C#, ASP.NET MVC, SQL Server, REST APIs)**
 - * Built a web application from scratch to manage external learner registration, including user signup workflows, input validation, data persistence, and error handling.
 - * Integrated the application with Workday Learning through REST APIs to synchronize enrollment data in real time.
 - * Identified and resolved a critical duplicate email issue that silently overwrote user records; redesigned conflict detection logic and improved user-facing error messaging.
 - * Deployed, maintained, and supported the application in production, monitoring behavior and resolving issues as they arose.
 - **AI Chatbot Feature – EEL Signup Assistant (ASP.NET MVC, REST APIs)**
 - * Proposed and built a user-facing chatbot feature to help external learners complete the signup process without contacting staff.
 - * Integrated a GPT-based conversational assistant into the live application to provide step-by-step guidance and reduce support requests.
 - * Added multilingual support and an escalation workflow to route unresolved issues to human support by chat, phone, or email.
 - * Designed the feature with secure isolation from internal application data, database records, and source code.
 - **ERMS Document Loader – Batch Data Migration System (.NET 8, C#, XML, CSV)**
 - * Built a batch processing tool to migrate large volumes of documents and metadata from source folders and CSV files into structured output.
 - * Matched files to metadata records, generated XML templates, and automated file movement to archive folders after successful processing.
 - * Implemented handling for edge cases including vendor name extraction, date normalization, and malformed CSV values.
 - * Added a Review folder workflow to isolate unmatched files for manual follow-up and prevent data loss.
 - **SQL Server ETL Pipeline – MasterCat Data Refresh (SQL Server, T-SQL, Workday)**
 - * Designed and implemented an ETL process to keep production SQL Server data synchronized with upstream Workday data.

- * Built staging workflows that loaded incoming records, compared them with production data, and performed targeted insert, update, and delete operations.
- * Improved data accuracy and reduced drift between source and production systems, increasing downstream reporting reliability.
- **Legacy Application Upgrades – .NET 8 Migration (C#, GitHub Actions)**
 - * Upgraded multiple production applications to .NET 8
 - * Resolved dependency and compatibility issues, including Oracle library conflicts, and updated CI/CD pipelines to support the new runtime.
- **Backend Development and Production Support**
 - * Developed and maintained backend REST APIs and services supporting enterprise applications.
 - * Monitored system behavior and analyzed logs to diagnose and resolve issues in production environments.
 - * Optimized SQL Server queries, maintained database schemas, and worked with stakeholders to define requirements and deliver maintainable solutions.
- **Digikala** – Tehran, IR February 2017 – April 2020
Full Stack Developer (Full-Time)
 - Developed and maintained customer-facing web features using HTML, CSS, JavaScript, Bootstrap, PHP, and SQL.
 - Built backend services and third-party API integrations supporting e-commerce workflows.
 - Contributed to performance improvements and feature delivery on a high-traffic production platform.

Education

- **Ph.D. in Computer Science** – Iowa State University, Ames, IA — GPA: 3.6 2022 - Present
- **Master of Computer Science** – Bu-Ali Sina University, Hamedan, IR — GPA: 4.0 2020 – 2022
- **Bachelor of Engineering Science** – University of Tehran, Tehran, IR — GPA: 3.7 2015 – 2020

Selected Technical Projects

- **ExpertReviewersHub – Academic Peer Review Portal (ASP.NET Core MVC, SQL Server, MailKit)**
 - Built a full-stack web portal connecting academic institutions with expert peer reviewers, featuring role-based registration, referral codes, and automated email confirmation workflows.
 - Implemented an admin dashboard for manuscript management and reviewer dashboards for tracking assigned submissions.
 - Architected the backend with ASP.NET Core MVC and SQL Server, applying role-based access control and secure session management.
- **Log Anomaly Detection Using LLMs and Machine Learning**
 - Designed and built an end-to-end pipeline for anomaly detection in large-scale system logs, processing approximately 4.7 million log lines.
 - Converted unstructured log text into structured data, generated embeddings, and evaluated anomaly detection models using machine learning techniques.
 - Managed batch processing challenges, API limits, and compute environment issues across large datasets.
- **Architectural Smell and Refactoring Research – Arcan and RefactoringMiner Pipeline**
 - Built a Java-based analysis pipeline to study the relationship between architectural smells and refactoring operations across more than 21,000 commits.
 - Developed Python scripts to parse commit data, compute summary statistics, and generate CSV reports for downstream analysis.

Independent Projects

- **JammyliciousStore – E-Commerce Platform (Next.js, Stripe, Firebase)**
 - Developed an e-commerce site with product catalog, shopping cart, secure Stripe checkout, order tracking, and customer account management.
 - Added AI-based recommendation support and real-time order notifications.
- **DietApp – Personalized Diet Planner (SwiftUI, SwiftData)**
 - Built an iOS application that stores user profiles and generates personalized meal plans through API integration.
 - Implemented asynchronous API calls, structured prompts, and JSON parsing to return formatted plans in the app.