

Hamidreza Khaksar

Senior Software Engineer — .NET Backend, Distributed Systems & AI Integration

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PROFILE

Senior software engineer with 7+ years designing, building, and operating backend systems, microservices, and distributed platforms across transportation, manufacturing, education, e-commerce, and finance — including the architecture of a 23-service platform on Kubernetes. Since August 2025, delivering end-to-end web platforms and LLM-powered automation for international clients, combining ASP.NET Core, Blazor, and SQL Server with Anthropic Claude and Google Gemini. Backed by two and a half years of research in fog and IoT systems optimization, an MSc in Software Engineering (GPA 4.00/4.00), and two ISI-indexed journal articles on service placement and scheduling in Cloud-Fog-Edge-IoT environments.

TECHNICAL SKILLS

Languages & Frameworks: C#, .NET / ASP.NET Core, Blazor, Razor Pages, Entity Framework, Java, Python, Node.js, JavaScript, React, Angular, Android (native), iOS

AI & Automation: LLM integration (Anthropic Claude, Google Gemini), conversational AI and product-recommendation assistants, LLM knowledge bases, Instagram and WhatsApp Business messaging integration, business-process automation, conversation analytics, PyTorch, TensorFlow

Distributed Systems: Microservices architecture, RESTful API design, Domain-Driven Design (DDD), event-driven messaging with RabbitMQ, Docker, Kubernetes

Data: SQL Server, MongoDB, Dapper, stored procedures, triggers, hybrid transactional/read-optimized architectures

Research & Simulation: iFogSim / iFogSim2, MATLAB, multi-objective metaheuristic optimization, Pareto-front evaluation (Hypervolume, IGD)

Platforms & Tooling: Linux, Windows Server, Git / GitHub, branching and issue-tracking workflows

PROFESSIONAL EXPERIENCE

Independent Software Engineer — Web Platforms & AI Automation | Freelance

Aug 2025 – Present

Remote

- **B2B industrial-parts import/export platform:** designed and delivered the full web platform for a trading company supplying industrial parts manufactured to customer drawings through audited partner workshops (CNC machining, casting, and sheet metal) — a public website in ASP.NET Core Razor Pages and a Blazor administration panel backed by SQL Server, fully containerized with Docker for consistent, reproducible deployment.
- **Dental-products e-commerce platform with AI sales assistant:** built a Razor Pages storefront, a Blazor customer portal, and a Blazor administration panel for catalogue and order management on SQL Server, and integrated an Anthropic Claude-powered assistant that interprets customer needs, recommends suitable products, and guides buyers to purchase.
- **LLM knowledge base:** designed a MongoDB knowledge store continuously enriched from prior customer interactions, improving the relevance of the assistant's recommendations over time while keeping transactional data isolated in SQL Server.
- **Omnichannel AI messaging and demand-insight backend:** engineered a Google Gemini-driven service, with MongoDB as its data store, that automates customer conversations across Instagram and WhatsApp from a single backend and mines those conversations to forecast emerging product demand, giving the business data-driven input for product planning.

Research Assistant — Fog & IoT Optimization | Islamic Azad University, Khorasgan Branch

Feb 2023 – Aug 2025

Isfahan, Iran · Hybrid

- **Designed distributed frameworks for service placement and scheduling** across fog-cloud environments under heterogeneous resource, node mobility, and bandwidth constraints.
- **Developed improved multi-objective variants of five nature-inspired algorithms** — Artificial Hummingbird, Ali Baba and the Forty Thieves, Mountain Gazelle, Butterfly Optimization, and Flower Pollination — extending the work from single- to multi-objective across energy, power cost, makespan, and latency.
- **Built and validated simulation environments** in Java (iFogSim/iFogSim2) and MATLAB, testing proposed frameworks against realistic IoT workloads and fog topologies.
- **Co-authored published and under-review journal and conference articles** and mentored PhD students on experimental design, simulation, and technical writing.

Senior Developer & Project Manager | Baravard.co

May 2022 – Jan 2023

Isfahan, Iran

- **Led delivery of an AI-driven car marketplace** with machine-learning price estimation, plus core modules for inventory, financial transactions, and employee management.
- **Architected a hybrid data-access solution** pairing SQL Server for transactional integrity with MongoDB for high-performance reads.
- **Developed the ASP.NET Core 6 backend** (RESTful APIs, authentication, business logic) and a component-based React frontend, then deployed and maintained the platform on Linux servers.

Senior Developer & Project Manager | Sharif Gearbox Manufacturing Company
Isfahan, Iran

Nov 2021 – Apr 2022

- **Designed and delivered an end-to-end order management system** on a microservices architecture, containerized with Docker for consistent, reproducible environments.
- **Developed backend services in .NET 5 and Entity Framework** over SQL Server, ensuring reliable transactional data management.
- **Built inventory and financial management modules** that improved stock tracking, transaction handling, and operational visibility for the plant.

Senior Developer & Project Manager | Houshmand Gostar Company
Isfahan, Iran

Feb 2021 – Feb 2022

- **Led architecture and delivery of 23 microservices** for a large-scale student management, payment, and ticketing platform, owning modularity, scalability, and service-integration reliability across the estate.
- **Decoupled services with RabbitMQ** and built the ASP.NET Core 6 backend — RESTful APIs, core business logic, authentication, and secure inter-service communication.
- **Designed a hybrid data layer** — SQL Server for transactional workloads, MongoDB for high-volume reads — using stored procedures, Entity Framework, and Dapper.
- **Containerized and orchestrated the platform** with Docker and Kubernetes, enabling automated scaling, load balancing, and high availability.

Web & Mobile Ticketing System Developer | Nour Al-Reza Rail Company
Tehran, Iran

Sep 2017 – Sep 2019

- **Developed and maintained a microservices-based ticketing platform** for rail ticket sales and management, containerized with Docker and orchestrated on Kubernetes for scalable releases, load balancing, and high availability.
- **Implemented backend services in ASP.NET Core 3 and Node.js** and shipped three clients — a responsive Angular web app plus native Android and iOS applications.
- **Designed a hybrid database architecture** (MongoDB for flexible storage, SQL Server for transactions) using Entity Framework, Dapper, stored procedures, and triggers.

Android Application Developer | Startup Project
Isfahan, Iran

Jun 2016 – Dec 2016

- **Built an Android application for municipal waste-collection management** with an ASP.NET Core 2 backend over SQL Server, supporting task tracking, notifications, and operational reporting.

EDUCATION

MSc, Computer Engineering — Software Engineering | Islamic Azad University, Khorasgan Branch
Isfahan, Iran · GPA: 4.00 / 4.00

2021 – 2024

- **Thesis:** Multi-Objective Artificial Hummingbird Algorithm for Service Placement in Fog Computing — a fault-tolerant, energy-aware placement framework (I-MOAHA) that reduced power consumption by 14.16% and latency by 10% against the MOAHA baseline.

BSc, Computer Engineering — Artificial Intelligence | Shahrekord University
Shahr-e Kord, Iran · GPA: 3.23 / 4.00

2015 – 2020

- **Teaching Assistant, Programming I & II** (2 years) — supported laboratory sessions and programming exercises for students in Computer Science, Electrical Engineering, and Mathematics.
- **Student Systems Supervisor** (3 years) — provided technical support, troubleshooting, and maintenance across university information systems.
- 2nd place, university ACM programming competition.

PUBLICATIONS

[1] **Toward Efficient and Reliable Fog Computing: A Mega Node-Based Service Placement Strategy with Improved Metaheuristic Optimization.** *The Journal of Supercomputing*, July 2026. doi.org/10.1007/s11227-026-08712-1

Mega-node clustering strategy plus I-MOAHA (opposition-based learning, territorial foraging, differential evolution); 14.16% lower power consumption and 10% lower latency vs. baseline in iFogSim2.

[2] **QoS-SLA-Aware Optimization Framework for IoT Service Placement in Integrated Fog-Cloud Computing.** *Journal of Grid Computing*, December 2024. doi.org/10.1007/s10723-024-09787-x

SLA-aware resource reservation with I-WHO, an improved multi-objective Wild Horse Optimization algorithm; up to 31% better service time, 18% lower energy, 9% lower cost, and 16% fewer SLA violations.

[3] **Service Placement of IoT Applications in Fog Computing.** 8th National Conference on Modern Studies and Research in Computer, Electrical, and Mechanical Sciences of Iran, November 2023. civilica.com/doc/1621011

Survey and classification of IoT service placement approaches and open challenges in Fog Computing.