Eren Mutlu

Full-stack Developer | .NET | Node.js | RAG Systems

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PROFESSIONAL SUMMARY

Backend-focused full-stack developer building production software since 2019 with .NET and Node.js. At Calibre Tour, built a multi-tenant reservation and payment platform on 11 ASP.NET Core microservices with a multi-currency wallet ledger. Led a 5-engineer team at an early-stage startup, spent a year on-site in the Netherlands, and built LIBRAIN, an open-source multi-agent RAG system in .NET 10 with a published preprint and a live demo.

SKILLS

Programming Languages:	C#, TypeScript, JavaScript, Dart (Flutter), SQL
Backend:	.NET, EF Core, Node.js, Nest.js, Express.js, Prisma, REST/SOAP APIs, Microservices, Clean Architecture, CQRS, Unit Testing
AI & RAG:	Anthropic Claude, OpenAI, Qdrant, Embeddings, Multi-Agent Systems, LLM-as-a-Judge
Frontend:	React.js, Next.js, Vue.js, Tailwind CSS
Data & Messaging:	PostgreSQL, MySQL, MSSQL, MongoDB, Redis, Kafka, RabbitMQ, BullMQ
DevOps & Cloud:	Docker, Kubernetes, AWS (ECS), Cloudflare, GitHub Actions, GitLab CI/CD, Coolify, Hetzner
Languages:	Turkish (Native), English (Professional Working Proficiency)

WORK EXPERIENCE

Calibre Tour

Marmaris, Turkey

Senior Software Developer

Jan 2025 - Present

- Built a multi-tenant B2B/B2C reservation platform (hotels, flights, transfers, holiday packages) on 11 ASP.NET Core (.NET 10) microservices with EF Core 10 and SQL Server, plus most of the React admin panel and the Next.js checkout, booking and account flows in 4 languages incl. RTL.
- Built the identity service and B2B model: ASP.NET Core Identity with JWT access and refresh tokens, 7 user types and per-tenant policy-based roles; partner onboarding with document review and approval at starting rates; booking on a client's behalf, option holds with Hangfire expiry jobs, pay-later on account, and agency commissions across 7 product scopes, stamped on each booking and traceable in the ledger.
- Built the hotel contract and rate engine (per-market markup, bruto and commission; date-ranged room, board and occupancy rates; cancellation and amendment policies; a shared allotment pool with stop-sale; stackable promotions) and hotel earnings (dated commission history, paid search promotion, payables that follow every booking change, IBAN payouts, tiered contract rebates closed per period).
- Built hotel search merging own inventory with Paximum (own stock first, promoted hotels ranked, area suggestions) and own-to-supplier matching (name, distance and star scoring, admin-approved) over a 1.39M-hotel catalogue, serving matched hotels' offers without a supplier call.
- Proposed and built Booking.com content enrichment as a Node.js side service (Express.js, PostgreSQL with Prisma ORM, BullMQ jobs on Redis): pulls photos, descriptions, star ratings, review scores, reviews and facilities per locale through RapidAPI, matches them to platform hotels and caches them.
- Built the flight product (own inventory with pricing, promotions and ancillaries; supplier flights with fare rules, holdability checks, expired offers and a payable ledger) after splitting a 3,700-line legacy module, and integrated Paximum and SanFlight with Redis-shared sessions, token-bucket rate limiting and Polly circuit breakers. Supplier bookings run as a MassTransit saga (re-validate, charge, commit, reconcile) with auto-refunds and server-set prices.
- Built holiday packages and tours: per-occupancy availability precomputed with Hangfire, demand-driven price refresh, a B2B portal with an Excel availability heatmap, a tour authoring wizard with seasonal pricing and multi-departure seats, and day-by-day travel tickets by email.
- Built the multi-currency wallet ledger and payment service: atomic EF Core postings that retry on rowversion conflicts, live FX cross-rates with a locked display rate, per-relation credit limits and top-up by card or IBAN; Paycell and 3D Secure via İşbank, Garanti BBVA and Yapı Kredi routed by currency and card brand, Turkish installments with BIN detection and a net-preserving surcharge, and refunds in the charge currency.
- Hardened and sped up the platform: single-claim guards on payments, cancellations and refunds; B2C responses stripped of internal pricing; BFF login with httpOnly cookies and CSRF protection; EF Core tenant query filters; SQL Server filtered and full-text indexes and HybridCache over Redis; and money-rule changes checked against production data, which caught a supplier-flight overpayment and an off-by-days free-cancellation date.
- Ran the infrastructure: Docker containers on Coolify (Hetzner) and AWS ECS, GitHub Actions that test only changed services, an enforced feature-to-dev-to-main flow, a weekly anonymized prod-to-dev DB refresh, Supabase Storage with signed URLs, Serilog and OpenTelemetry, and 29 Razor email templates in 4 languages.

Pawbooking.co (Founding Team)

Remote

Lead Backend Developer

Mar 2024 - Jan 2025

Part-time startup role in the evenings alongside Bafra Gida until September 2024, then my main role.

- Led backend development for a pet accommodation booking platform as part of a 4-person founding team. Managed 5 engineers, owned architecture decisions, ran code reviews and took part in technical hiring.
- Kept bookings and payments consistent by integrating Paycell and iyzico payments into the reservation flow as atomic transactions.
- Architected the booking engine and REST APIs with Express.js, Next.js and MongoDB, and optimized the MongoDB schemas.
- Took the platform live (pawbooking.co) on AWS with self-hosted CI/CD on Coolify. Left voluntarily in January 2025.

Bafra Gida Ltd. Sti.

On-site, Turkey

Software Developer

Sep 2023 - Sep 2024

Full-time contract, on-site.

- Replaced spreadsheet workflows with stock and inventory microservices in .NET and Vue.js across 1 main warehouse and 2 outsourced operations.
- Designed backend services and data flows for the company's restaurant and auto maintenance units.
- Automated daily operations and reporting with Express.js and React tools, worked out requirements with cross-functional teams and shipped releases through GitHub Actions.

Content Power BV

Rijswijk, Netherlands

Software Developer, AIESEC Global Talent Program

Aug 2022 - Sep 2023

- Built a custom server-side rendering (SSR) engine in .NET (non-SPA) that generates dynamic UI components for high-traffic ISP client portals.
- Cut repeated frontend code with object-oriented domain models that generate lists and forms automatically.
- Automated DNS management through the Cloudflare API and built secure multi-file uploads with Uppy.js for backend processing pipelines.
- Shipped features to ACC and PROD environments through GitLab CI/CD in an agile international team.

Intertech Information Technology

Istanbul, Turkey

Software Developer

Jul 2021 - Aug 2022

- Improved throughput on high-volume, KPI-driven banking workflows with Kafka event-driven processing and Redis caching.
- Built .NET microservices on Kubernetes and JS/TS components for corporate and commercial banking clients under strict compliance and SLAs.
- Refactored large legacy codebases after peer code reviews, fixing bugs, bad practices and architectural inconsistencies, and shipped through a multi-stage release process (test, staging, controlled production) with QA testers.
- Wrote unit tests across banking microservices and used TFS for version control and work tracking.

Teknoraks Teknoloji Market

Gaziantep, Turkey

Software Developer

Jun 2019 - Jul 2021

Part-time and remote in the first year, full-time from the pandemic onward, in a startup team with volunteer engineers.

- Pulled orders from Trendyol, Hepsiburada, Çiçeksepeti and n11 into the company's order panel in real time with .NET Worker Services on MSSQL.
- Built cargo management in .NET to handle shipping for those marketplace orders.
- Built a Flutter staff app on the same order data, with Firebase Authentication (email/password) and Provider state management.
- Moved the REST and SOAP endpoints into shared Postman collections for docs and testing, and worked on backend performance fixes.

PROJECTS

LIBRAIN: Multi-Agent RAG System for Scientific Discovery

librain.erenmutlu.me

.NET 10, ASP.NET Core, Claude, OpenAI, Qdrant, SQLite, React, TypeScript

- Open-source multi-agent RAG system that links two research fields into a cited hypothesis over 67 papers; live demo with 88 ideas.
- A citation contract in C# drops references to passages never retrieved (fabricated citations: plain RAG 65-67, LIBRAIN 0), and a second model labels each speculative sentence grounded, extrapolated or risky.
- 851 tests in CI (xUnit, Vitest), incl. replays of the paper's recorded results. Docker, GitHub Actions, Render, GitHub Pages, Qdrant Cloud.

Mobile Application for Hearing-Impaired Communication

TUBITAK 2209-A, 2021

Unity, C#, Speech-to-Text, Blender

- Mobile app that turns spoken Turkish into Turkish Sign Language animations in real time, so hearing-impaired people and the public can talk in daily life.
- Built with Unity, C# and speech-to-text, funded by TUBITAK (2209-A) and supervised by Assoc. Prof. Dr. Caner Özcan. Published on Zenodo.

EDUCATION

Karabuk University

Karabuk, Turkey

B.Sc. Computer Engineering (100% English instruction)

Jul 2018 - Sep 2023

Thesis: TUBITAK-funded real-time speech-to-sign language app (see Projects). Coursework: Data Structures & Algorithms, Software Architecture (OOP/Design Patterns), Distributed Database Systems.

CERTIFICATIONS

Global Talent: Back-end Web Developer — AIESEC · 2023

EF SET English Certificate, B2 Upper Intermediate — EF Education First · 2021

PUBLICATIONS

LIBRAIN: A Multi-Agent RAG System for Scientific Discovery — 2026

Preprint, Zenodo, DOI 10.5281/zenodo.20745782

Mobile Application for Hearing-Impaired Individuals to Communicate in Daily Life — 2021

Co-author, TUBITAK 2209-A, Zenodo, DOI 10.5281/zenodo.17457628