

Soufien HAJJI

Lead Software Engineer · AI Engineer on Azure

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PROFILE

Software engineer with 9 years across .NET / Azure who now designs and ships **production GenAI systems end-to-end**, LLM agents & tool-use, RAG, NL-to-SQL, that stay **grounded, governed (AI Act / RGPD) and reproducible. Microsoft Certified: Azure AI Apps and Agents Developer Associate**. At Natixis Investment Managers I built a financial-risk (RWA) platform, then the **agentic AI layer** on top of it. On my own I designed, built and deployed **energy.soufien.lu**, a live agentic-RAG product that **helps project managers prospect solar-PV opportunities** in Luxembourg's energy transition, and I am currently building **law.soufien.lu**, point-in-time retrieval of Luxembourg & EU law with verifiable provenance, served over a public MCP endpoint. Comfortable from data model to backend, API, UI and cloud/DevOps.

PERSONAL PROJECTS · DESIGNED, BUILT & DEPLOYED SOLO

energy.soufien.lu · Luxembourg Energy Transition Co-Pilot

2025 · live

A grounded, agentic RAG product that helps project managers prospect where to install solar PV (roofs & car parks) and answers energy-law, subsidy & tariff questions, deployed on Azure.

- **Agentic orchestrator** (Azure OpenAI + Microsoft Agent Framework), one agent driving a **5-tool architecture**: natural-language → SQL over a PostGIS map/list of roofs & car parks, cited RAG legal Q&A over a standalone **MCP law server**, a tariff engine and a PV-tender finder, the LLM narrates, **numbers are computed deterministically** (never invented).
- **Azure AI Content Understanding** turns public tender documents (HTML + PDF) into machine predicates → **dynamic UI filters** + a **deterministic "apply tender"** reproducing the exact certified candidate set every time (3,373 roofs + 831 car parks); **zero-shot multimodal vision** classified existing PV on ~5,200 roofs and ~850 car parks from aerial imagery.
- **Responsible AI by design** (grounded & cited or refused, SELECT-only sandboxed SQL, a grounding "judge", RGPD-aware memory) and **full-stack ownership**: C# API · Python pipelines · React/MapLibre · PostgreSQL/PostGIS/pgvector · Terraform IaC (18 modules) + GitHub Actions CI/CD to Azure Container Apps & Static Web Apps.

law.soufien.lu · Lex, point-in-time Luxembourg & EU law

WORK IN PROGRESS

2026 · in progress

Answers one question the official portals cannot: what did this law actually say on that date?, 1,407 laws held as 4,693 dated snapshots reaching back to 1849, every answer traceable to publisher bytes.

- **Two-layer data architecture**: an append-only evidence layer storing the publishers' own bytes with a sha256 per observation, and a **deterministic derived layer** (per-article Markdown + JSON, hash-chained) rebuilt reproducibly from it, so a claim can always be walked back to the official source. Immutable extraction profiles (Akoma Ntoso, Formex 4) are pinned by frozen-fingerprint tests.
- **Public MCP server (9 tools)** over a signed SQLite/FTS5 index whose ECDSA signature binds a digest of the content itself, plus a grounded AI layer on the same tools, with a **refusal taxonomy as an API contract**: no version for that date is an answer, never a guess. C# / .NET 10 · React · Azure Container Apps · nightly automated ingestion with a dead-man's check · 61 tests + LLM-graded evals gating CI.

soufien.lu · AI portfolio assistant (companion to this CV)

2026 · live

- A grounded agentic-RAG assistant that answers questions about my experience & code and scores a pasted job description against my profile. **One orchestrator + tools on Microsoft Agent Framework**: knowledge search (**Azure AI Search**, hybrid vector+keyword), real source-code retrieval and a **deterministic job-fit scorecard**, grounded-or-refuse, Prompt Shields on untrusted input, Terraform IaC and eval-gated CI/CD.

PROFESSIONAL EXPERIENCE

Software & AI Engineer · Natixis Investment Managers

Oct 2024 - Present · Paris

Designed & built an internal regulatory-capital (RWA) platform, then the agentic AI layer on top of it.

Phase 1 · Software Engineering: the RWA platform

Computes & reports regulatory capital across credit & market risk · ASP.NET Core 8 (C#) ↔ Python (FastAPI) ↔ SQL Server, integrating MSCI RiskMetrics · deployed to IIS.

- **Three business modules**, an audited 5-step **credit-inventory** workflow (Excel intake → normalize → match the historical database → assign counterparty codes → data-quality controls → a validated enriched dataset, with checkpoints & rollback); **credit regulatory reporting** over two exposure tracks (internal + securitized look-through) through an enrichment → contract → outstanding → securities pipeline to auditable Excel deliverables; and a **market-risk** module computing FRTB (Sensitivity-Based Method) capital via **MSCI RiskMetrics**, look-through, blends, sensitivities and static data.
- Architected the layered **.NET 8 MVC** solution (DI, EF Core / SQL Server) with checkpointing & audit for reproducibility; data engineering (Excel/XML/SOAP ETL, fuzzy matching, a data-quality rules engine), real-time UX (SignalR), CI/CD + unit tests.

- Designed the **.NET** ↔ **Python integration**, a co-located **FastAPI sidecar** (typed HttpClient, health-checked) owns the Python-only MSCI SDK + market-risk calc. Diagnosed & fixed a hard connectivity blocker, source-IP whitelisting behind an NTLM/Kerberos proxy (**403s from the cloud**), with network/security + MSCI. Owned the production concerns: **AD / LDAP auth**, **Serilog** with correlation IDs, resilience (**EF retries**, **Redis→in-memory fallback**, **graceful sidecar**), multi-environment config.

.NET 8 / ASP.NET Core MVC **EF Core** **Python / FastAPI** **SQL Server** **MSCI RiskMetrics (SOAP)** **SignalR** **Razor / Bootstrap / Vite**
Serilog **IIS** **RWA** **FRTB/SBM** **Basel/CRR**

Phase 2 · AI Engineering: the agentic layer (PoC → production)

Built and industrialized an AI assistant on top of the platform: business users query regulatory data in natural language, with deterministic, auditable numbers.

- Three capabilities**, an **NL analytics assistant** (plain-language questions over credit and market data; the model narrates, the engine computes), a **RAG knowledge assistant** grounded on regulatory & methodology documents (FRTB/CRR, MSCI methodology, internal specs), and **Document Intelligence** (upload → automated extraction → analysis surfaced back in the app).
- Built a **tool-using agent** over a curated toolset (platform REST APIs, a **text-to-SQL** analytics tool, a **RAG** retrieval tool, document extraction), acting through deterministic services, never fabricating figures; RAG ingestion/enrichment pipeline (load → enrich → chunk → embed → vector store).
- Responsible AI** (SELECT-only access, grounding + citations, prompt engineering, human-in-the-loop, guardrails) + **evals** (accuracy/faithfulness) and production observability; shipped as a native module through the existing CI/CD.

LLM agents **tool-use** **RAG** **embeddings** **vector store** **text-to-SQL** **Responsible AI** **guardrails** **prompt engineering** **evals**
Azure App Insights **Azure AI Document Intelligence** **Python** **SQL** **C#**

.NET Software Engineer, Loans & Securities · Société Générale

Jul 2021 - Sep 2024 · Paris La Défense

- Front-office **trading platform** (thick-client, X-One), securities lending & borrowing desk. Designed & built the deal **position-calculation engine** + **collateral valuation** (key inputs for Risk's exposure), plus a **prepay-offset module** with a runtime-dynamic strategy for anticipated interest flows.
- Led the **.NET 4.8** → **.NET 6** migration; SOLID / DI / TDD. Rotating roles: quality task-force (anti-code-freeze) + front-office production support. Team ~30 Paris / ~20 Bangalore, Jenkins CI.

.NET / Azure Consultant · SNCF Réseau

May 2019 - Jun 2021 · Paris

- Real-time train-monitoring web app (stations ↔ technicentres) with **per-technicentre dynamic genericity**, **ASP.NET MVC 5** + business APIs in **ASP.NET Core 3.1**, **SignalR** (real-time + in-app chat). Scaled for concurrency: IIS load-balancing, async processing, lazy-loading.

Azure Consultant / .NET Developer · Orange Business Services

Jan 2018 - Apr 2019 · Massy

- Built an internal **event-ticketing platform** (concerts, expos & corporate events, with **ticket-chaining** & secure payment) as **microservices** (.NET Core 3.1, Docker) behind **Azure APIM**; full Azure estate (**AKS**, App Services, Key Vault, SQL Azure) via Terraform IaC + Azure DevOps CI/CD; also document-management components (BOX API, EF).

TECHNICAL SKILLS

AI / LLM	LLM agents & tool-use (function calling) · Microsoft Agent Framework · RAG (chunking, embeddings, pgvector) · NL-to-SQL · MCP (Model Context Protocol) servers · prompt engineering · evals · Responsible AI / guardrails · Azure OpenAI · Content Understanding · Document Intelligence
Languages	C# · Python · TypeScript / JavaScript · SQL
Backend	ASP.NET Core 8 / MVC · EF Core · FastAPI · SignalR · REST & SOAP
Data	PostgreSQL / PostGIS / pgvector · SQL Server · Oracle · SQLite / FTS5 · pandas · reproducible pipelines & content-addressed provenance
Frontend	React · Vue 3 / PrimeVue · MapLibre · Vite · Bootstrap
Cloud / DevOps	Azure (Container Apps, Static Web Apps, OpenAI, AI Foundry, Functions, Key Vault, App Insights, APIM) · Terraform (IaC) · GitHub Actions & Azure DevOps · Docker · IIS
Practices	SOLID / clean architecture · TDD & unit testing · AI Act & RGPD governance · mentoring & documentation

CERTIFICATION

Microsoft Certified: Azure AI Apps and Agents Developer Associate

Earned Jul 2026 · exam AI-103 · [verify on Microsoft Learn](#) ↗

Next: AI-200 · Azure AI Cloud Developer Associate (in preparation) → AI-500 (beta) · Multi-Agent AI Solutions Expert → longer term, TOGAF EA Practitioner.

EDUCATION

ENSTA ParisTech, Engineering degree (Bac+5)

Architecture & Security of Information Systems · 2015-2018

LANGUAGES & INTERESTS

French, bilingual · English, fluent (TOEIC 895/990) · German, basics
Coding challenges (9th / 148, Spring Challenge 2020) · Unity game dev · strategy games