Mehdi Rhifar *Software Engineer*

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💼 Work Experience

09/2022 – Present
Paris

CDC Informatique, *Backend Engineer*
Multimodal AI Chatbot
- Developed an advanced RAG pipeline (Semantic Chunking, RAG Fusion, ReAct) serving over 10,000 users.
- Implemented an asynchronous architecture with SSE streaming and multi-threading for CPU-intensive tasks.
- Orchestrated agentic multi-model workflows utilizing Mistral, Codestral, and Flux.
- **Stack: Python FastAPI, LangChain, MongoDB, Azure Search**

Carbon Footprint Prediction
- Designed a 3-microservice architecture comprising two Spring Boot services and one Python ML service.
- Leveraged Kafka for asynchronous communication to ensure decoupling and scalability.
- **Stack: Java Spring Boot, Kafka, PostgreSQL**

04/2022 – 09/2022
Paris

MBDA, *Software Engineer Intern*
- Developed a real-time simulator for operator training in a defense context, implementing low-level C++ under strict quality and security constraints
- **Stack: C++**

📁 Personal Projects

Cryptocurrencies Multi-Exchange Orderbook, *(Rust, Vue3)*
- **Ultra-Low Latency:** Achieved P50 latency of 9μs and P99 of 195μs through L1 cache optimizations.
- **Lock-Free Architecture:** Implemented concurrent DashMap and zero-allocation parsing to minimize overhead.
- **High Throughput:** Processed 1,000 real-time messages/sec across 4 exchanges (Binance, Coinbase, Bybit, Kraken).
- **Extensibility:** Engineered a modular design allowing new exchange integration in ~200 lines of code.
Link: mehdirhifar.dev/en/projects/flowrs 🔗

Random Maze Generator, *(Rust, React, Vercel CI/CD)*
- **Algorithmic**: Implemented 5 maze-generation algorithms with real-time visualization.
- **Performance**: Built a Rust backend compiled to WebAssembly (Wasm) to deliver browser-optimized, near-native performance.
Link: maze-generator-mehdi-rhifar.vercel.app 🔗

Portfolio : mehdirhifar.dev 🔗

🌐 Technical Skills

Languages
Java, Python, Rust, C/C++, TypeScript

Infrastructure & Data
Kafka, PostgreSQL, MongoDB, Azure AI, Docker, CI/CD

Concepts
LLM/RAG, Low-latency, Multithreading, Concurrency

🎓 Education

Master's in Software and Data Engineering,
Université Gustave Eiffel
2021 – 2023 | Paris
- **Focus:** Code Quality, Design Patterns, and Optimization (Algorithms, Data Structures, Concurrency, Databases).

Bachelor's in Mathematics and Computer Science,
Université Gustave Eiffel
2018 – 2021 | Paris