

# Abdelraouf (Raouf) Hecham

Protocol Engineer · DeFi infrastructure, onchain execution, AI agents · PhD in AI

Paris, France · Remote (EU and US hours) · Contractor, open to contract or employment

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## SUMMARY

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Protocol engineer with 12 years in software, 4 in DeFi. I design and run production protocol infrastructure: multi-chain indexers, APIs, liquidation bots and AI agents, about 20 of which trade real money, each with its own strategy. Nothing I ship reaches production without gating CI, full integration tests and alerting. PhD in AI (13 papers, including A\* conferences). Main stack: TypeScript, Python, Solidity, PostgreSQL.

## EXPERIENCE

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### Protocol Engineer

#### Cork, DeFi protocol

Oct 2025 - Present · Contract · Remote

- Built and operate the protocol's event indexer on 5 chains (Ethereum, Base, Arbitrum, Polygon, HyperEVM) as durable Temporal workflows that self-heal at the chain head, with Prometheus, Grafana and Slack alerts.
- Built the production API on top of the indexer, including the RFQ venue where makers and takers negotiate, with versioned modules and keyed rate limits, and the MCP server and CLI for AI assistants.
- Designed the trading agents platform so teammates write their own agents in one unified format, combining an LLM decision layer with the protocol's operations (quote, negotiate, fill, roll over). Agents answer and negotiate RFQs in milliseconds, and their onchain results are recorded and fed back in under 100 ms.
- Run about 20 agents that trade real money on Ethereum, Base and Arbitrum from Safe smart accounts (ERC-7579, ERC-4337 paymasters). Hooks limit what each agent can call, a multisig owns the fleet, and fork tests proved its safety before launch.
- Wrote the agent infrastructure contracts in Solidity and parts of the protocol's feature contracts (rollovers, token permits for just-in-time minting, market creation), plus helpers and core fixes, then deployed and verified all 12 contracts at one CREATE2 address per chain, with vanity addresses mined on GPU.
- Built dashboards for stakeholders and operators: live views of the agents' quotes, fills and positions, and of protocol events and user interactions across chains.
- On call for production on AWS: CI on GitHub Actions gates every merge with unit, integration and fork tests and promotes green builds from staging to production, and I lead incident reviews: 4 production incidents root-caused in one day, with 5 lasting fixes shipped.
- Built a tokenized reinsurance pilot: policies and obligations as onchain records with a rules engine for premiums and claims, and salted Merkle commitments so each insurer verifies only its own data.

### Tech Lead

#### Nefture (now Syncrone), onchain security and analytics

May 2024 - Oct 2025 · Paris

- Designed the core of the DeFi PnL platform: a JSON language that describes any protocol position as a sequence of calls, an engine that rebuilds positions block by block, and an optimised PnL engine on top. It became Syncrone's product, which now manages \$400m of assets.
- Built the data platform behind a browser extension that warns users before they sign a malicious transaction: address labels from public and threat datasets, and an indexer on 5 chains in Python, Airflow and dbt over PostgreSQL, Snowflake and BigQuery.
- Built a TensorFlow model that scores more than 100,000 newly deployed contracts a day for maliciousness, with an F1 score of 96.3%, feeding the extension's labels.
- Led a team of 4 engineers across both products, and ran the hiring of a senior full-stack engineer.

### Senior Data Engineer

#### Orange Business, consulting

Nov 2019 - Mar 2024 · Montpellier

- Led a team of 5 building an NLP and OCR system that tracks EU regulation changes for a cosmetics brand.
- Built a reusable library that embeds real-time Qlik visualisation of financial data into Angular applications.
- Built data pipelines, dashboards and Salesforce integrations for clients in industry, pharma and finance.

## Research Engineer

### University of Montpellier, EU Horizon 2020 project

Oct 2018 - Oct 2019 · Montpellier

- Lead developer of a real-time platform where agents with conflicting preferences reach collective decisions.

## PhD Researcher and Lecturer

### University of Montpellier (LIRMM)

Sep 2015 - Sep 2018 · Montpellier

- Researched reasoning with conflicting knowledge, published at A\* conferences (AAAI, AAMAS), and taught 300+ hours of university courses to undergraduate and master students.

## Junior Full-Stack Developer

### Open Management Systems

Sep 2014 - Aug 2015 · Constantine (Algeria)

- Built web, desktop and Android applications for local clients.

## SKILLS

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- **Blockchain:** EVM, Solidity, Foundry, viem, Safe smart accounts, account abstraction (ERC-4337, ERC-7579), Morpho, Aave and Compound v3 integrations, flash loans, MEV-aware execution
- **Security:** smart contract review, invariant and fork testing, signature schemes (EIP-712, EIP-1271)
- **Data and indexing:** event indexers, HyperSync, PostgreSQL, dbt, Airflow, Snowflake, BigQuery
- **AI:** LLM agents, MCP servers, tool use, deep learning (TensorFlow), knowledge representation
- **Programming:** TypeScript / Node, Python, Solidity, Rust, SQL
- **Infrastructure:** Docker, AWS, GCP, Temporal, Prometheus, Grafana, GitHub Actions CI/CD
- **Earlier:** Java / Spring, Angular, Talend, Informatica, Qlik, Tableau, Salesforce

## SIDE PROJECTS

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- **Liquidation research and bots** (liquid.ifys.fun): indexed 220,000 lending liquidations across 16 chains (Morpho, Aave, Compound v3, Moonwell, Fluid) to measure who wins and why, and run my own flash-loan liquidation bots live on Base and Ethereum.
- **Spacezed** (github.com/raouf2ouf/spacezed): a Rust fork of the Zed editor, built as a cockpit for running many AI coding agents at once: a live registry of every agent across windows, a GPU-drawn status bar, and jumps to the agent that needs attention.
- **Security research:** found a signature-validation flaw in a widely used smart-account module (in disclosure).
- **Hackathons:** ETHGlobal Brussels 2024 winner (\$17k in prizes), and 3 Encode Club wins (2023-2024).

## EDUCATION

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### PhD in Computer Science (AI)

University of Montpellier

2018

### Master of Science, Information Systems and Web Technologies (ranked 1st of 76)

University of Constantine 2

2015

### Bachelor of Science, Information Systems

University of Constantine

2013

Qualified for associate professor posts in France (CNU section 27, computer science), 2019.

## PUBLICATIONS

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13 papers, including A\* conferences (CORE ranking): AAAI 2020, AAMAS 2017 and 2018.

Full list: [scholar.google.com/citations?user=8pZrh6AAAAAJ](https://scholar.google.com/citations?user=8pZrh6AAAAAJ)

## LANGUAGES

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English (fluent) · French (fluent, DALF C1) · Arabic (native)