

# DOMENICO DANIELE CELSA

## GenAI Engineer | Multi-Agent Systems Architect

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## PROFESSIONAL SUMMARY

Telecommunications Engineer with over a decade of experience in **Systems Architecture**, **Cloud Infrastructure**, and **Distributed Systems** (Blockchain/Web3). Currently pivoting to production-grade **Generative AI Architectures**, specializing in **Autonomous Multi-Agent Systems** (LangGraph/MCP) and **Agentic RAG**.

I combine a strong foundation in **DevOps and Enterprise Integration** (ex-Accenture IT Consulting - Technical Architect) with cutting-edge AI engineering to build resilient, observable, and granular, cost-effective AI solutions (**FinOps**).

## TECHNICAL SKILLS

- **GenAI Orchestration:** LangGraph, LangChain, Model Context Protocol (MCP), Hierarchical Multi-Agent Systems (Supervisor/Worker).
- **Data & Retrieval:** Agentic RAG (Hybrid Search), Vector DB (ChromaDB) & Embeddings, SQLite (Async), SQL Schema Introspection, BM25 (Keyword/Sparse Search), FlashRank.
- **Infrastructure & Ops:** AWS (EC2, S3, Cloud Architecture), Docker, CI/CD Pipelines, Networking (TCP/IP).
- **Core Engineering:** Python (AsyncIO), Pydantic, FastAPI, FastMCP, SQL, Shell Scripting, Linux/Unix.
- **Observability:** Custom Callback Handlers, Distributed Logging (Redis/BetterStack), Token-Cost Attribution (FinOps), System Monitoring.
- **Web3 & Blockchain:** Ethereum/EVM fundamentals, Solana Ecosystem (Rust logic awareness), NFT Metadata & Candy Machine, Tokenomics design, Wallet Management & Security, DeFi.
- **Product & Operations:** Customer Success Management (CSM), Technical Onboarding, Workflow Automation (Zapier), Community Architecture (Discord), Technical Writing.

# ENGINEERING CASE STUDIES (GEN AI)

Detailed architecture and code available at: [danielecelso.github.io/portfolio](https://danielecelso.github.io/portfolio)

## Hierarchical Multi-Agent Orchestrator | *LangGraph, SQLite, Google Gemini*

- Architected a **Supervisor-Worker** system to decompose ambiguous requests into executable actions across Calendar, Email, and SQL agents.
- Implemented **deterministic SQL Schema Introspection** to eliminate hallucinations in entity resolution.
- Engineered a custom observability layer to track **Token Usage & USD Cost** at a per-agent level, enabling unit-economic analysis of the system.

## Decoupled Autonomous Research Agent | *Model Context Protocol (MCP), FastMCP, Hybrid Grounding*

- Built a microservices-based architecture implementing the **MCP Standard**, decoupling the LLM client logic from the tool execution server.
- Designed **"Hybrid Grounding"** logic to cross-reference AI summaries against raw search metadata (URLs/Snippets), ensuring citation accuracy.
- Utilized **Server-Sent Events (SSE)** for real-time protocol tracing, providing full visibility into the agent's thought process over HTTP.

## Enterprise Document Intelligence (Agentic RAG) | *ChromaDB, LangChain, Recursive Retrieval*

- Developed a privacy-first RAG system using **ephemeral, session-scoped ChromaDB** instances to ensure strict data isolation between users.
- Recursive Retrieval (**Hybrid Search + Cross-Encoder Reranking**) to ensure high-precision answers avoiding hallucinations.
- Implemented an autonomous decision loop to optimize retrieval costs.

## Multimodal Compliance Auditor (In Development) | *Gemini 2.5, Pydantic*

- Engineering an AI Auditor capable of native video/audio ingestion to perform automated risk assessment on long-context multimedia.
- Enforcing strict JSON schemas via Pydantic for automated downstream compliance reporting.
- Evaluation layer

## PROFESSIONAL EXPERIENCE

**[Customer Success Manager & Community Lead]** | *Coderblock (Metaverse startup)*  
*Palermo, Italy* | 01/2023 – 10/2024

- **Tech-to-Business Bridge:** Acted as the primary translator between the development team and end-users, converting complex technical constraints into clear value propositions for clients.
- **Technical Onboarding & Retention:** Managed the complete lifecycle for high-value investors ("Land Owners"), from pre-sales technical demos to guided post-purchase onboarding and upselling, successfully converting community members into paid users.
- **Process Automation:** Engineered internal workflow automations using Zapier to synchronize data between Marketing and Sales, and authored comprehensive Technical User Manuals to scale support operations.
- **Growth & Partnerships:** Led ecosystem expansion strategies, managing influencer partnerships and executing multi-channel marketing strategies (Twitter/Discord) to drive user acquisition and retention.

**[Web3 Operations Lead & Technical Community Manager]** | *The Sports Club*  
*Milan, Italy* | 02/2021 – 02/2022

- **Technical Distribution:** Managed the end-to-end technical setup for NFT launches, including JSON Metadata generation and Solana Candy Machine configuration.
- **Community Architecture:** Architected the Discord server infrastructure (permissions, security bots, ticket systems, etc) to support and entertain thousands of users.
- **Engagement Strategy:** Designed gamification mechanisms and hosted live technical AMAs to drive pre-mint engagement and community growth & retention.
- **Tokenomics:** Collaborated with the core team to define token economy mechanics and utility structures.

**[Infrastructure Consulting Analyst / Technical Architect]** | *Accenture Consulting*  
*Milan, Italy* | 06/2015 – 02/2020

- **Mission-Critical Cloud Migration:** Acted as Project Manager (PM) to spearhead the end-to-end migration of legacy on-premises infrastructure to **Aruba Cloud** for a major enterprise client.
  - **Vendor Orchestration:** Acted as the primary lead, synchronizing operations between internal DevOps teams and the Cloud Provider's (Aruba) PMO.
  - **Zero-Downtime Execution:** Managed the cutover strategy for high-availability systems, ensuring continuous service continuity during the migration of live production environments.

- **Architecture & Cloud:** Acted as Technical Architect for global TelCo providers, designing and maintaining scalable application environments on **AWS** and on-premises.
- **Technical Leadership:** Led a squad of 3-4 engineers as the Single Point of Contact (SPOC), translating complex business requirements from client into technical execution plans.
- **DevOps & Integration:** Managed **Release Processes** and CI/CD workflows, significantly reducing deployment friction in pre-prod and prod environments.
- **Systems Reliability:** Performed advanced troubleshooting, log analysis, and root cause analysis to support Development and Test teams.

## EDUCATION

### **Master's Degree in Telecommunication Engineering (110/110)**

*Università degli Studi di Palermo, Palermo (Italy) - (01/11/2011 -> 30/03/2015)*

- **Focus:** Vehicular Network, Protocol Stack, Information Theory and Codes, Optical Communications and the same subjects of bachelor's degree.
- **Thesis:** *Vehicular Ad-Hoc Networks (VANET)* – Researched decentralized mesh networking protocols and latency optimization in mobile environments. (Erasmus Project, Istanbul).

### **Bachelor Degree in Telecommunication Engineering (103/110)**

*Università degli Studi di Palermo, Palermo (Italy) - (01/09/2007 -> 30/10/2011)*

- **Focus:** Mathematics, Physics, Computer Network, Mobile Network, Electronic, Signals Theory and Probability, Informatics, etc.

## CERTIFICATIONS & LANGUAGES

- **Languages:** Italian (Native), English (Professional Working Proficiency), Spanish (Colloquial).