

MARCO BELLINGERI

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PROFESSIONAL SUMMARY

Software engineer with cross-cutting experience in development, infrastructure, and application security. Designed and shipped enterprise platforms (debt recovery, infrastructure monitoring, critical video streaming), applying security-by-design at every layer: OWASP hardening, PII encryption, threat modelling, zero-trust networking. Core stack: Python, React/TypeScript, AWS, Kubernetes, CI/CD with integrated security gates. Hands-on experience on critical infrastructure (Rome Metro Line C, Etihad Airways). Remote-first.

TECHNICAL SKILLS

Backend & API Python (FastAPI, Flask, Falcon, Django) | REST API Design | Clean Architecture | DDD

Cloud & Infrastructure AWS (Lambda, SQS, SNS, SES, S3, EC2, IAM, VPC, CloudWatch) | Oracle Cloud OCI | Google Cloud | Cloudflare

Containers & Orchestration Docker | Kubernetes | K3s (production) | Helm | k3d | Terraform | Linux/systemd

Databases PostgreSQL + PostGIS | MySQL | Redis | MongoDB | SQLite FTS5 | Alembic migrations

DevOps & Monitoring CI/CD (GitHub Actions, Jenkins) | Prometheus | Grafana | Sentry | Cloudflare Tunnel

Frontend React | TypeScript | JavaScript ES6+ | Redux/Redux-Saga | Material-UI | PWA

AI / ML NLP (HuggingFace Transformers, Groq, Anthropic Claude API) | Sentiment Analysis | Emotion Detection

Cybersecurity & Secure Development

- **Security Automation:** CI/CD pipelines with Bandit, pip-audit, CodeQL, Gitleaks — vulnerabilities blocked before merge across 6 projects.
- **OWASP Hardening:** full Top 10 audit with documented fixes (brute-force lockout, CSRF middleware, CSP/HSTS, rate limiting, session hardening) — applied in production.
- **Applied Cryptography:** AES-256/Fernet for PII encryption at rest, HMAC-SHA256 for API key hashing, bcrypt with timing-safe comparison.
- **Critical Infrastructure:** 24/7 supervision of 400+ video endpoints (Rome Metro Line C) with credential masking in logs and binary obfuscation. Enterprise network diagnostics (Etihad Airways) with Scapy deep path analysis.
- **Zero-trust Networking:** Cloudflare Tunnel in production, K3s secrets management, presigned URLs for isolated file uploads.
- **Threat Modelling:** SECURITY.md with documented attack surface on 4 public repositories, GDPR by design.

WORK EXPERIENCE

FAIRFIELD S.p.A. — Figline e Incisa Valdarno (FI), Remote

Full-Stack Software Engineer | December 2025 – February 2026

Developed and maintained a comprehensive enterprise platform for debt recovery management, comprising three integrated projects:

- **Backend API:** Clean/DDD architecture backend with Falcon Framework (Python 3.10). 100+ RESTful endpoints, 50+ MySQL tables, AWS integration (Lambda, SQS, SNS, SES, S3, Pinpoint). 35+ background processors and 23+ AWS Lambda functions for async processing.
- **Commission Engine:** Standalone Python module for automated monthly commission calculation. Performance analytics with Pandas/NumPy, multi-format report generation (Excel, PDF, CSV, HTML). Desktop UI with PyQt6 and full CLI.
- **Frontend SPA:** React/TypeScript SPA with Material-UI for multi-role interface (Collectors, Debtors, Backoffice, Lawyers). Redux/Redux-Saga, real-time geolocation with Google Maps clustering, push notifications (OneSignal), IT/EN i18n, PWA.

Technologies: Python, Falcon, React, TypeScript, MySQL, Redis, AWS (Lambda, SQS, SNS, SES, S3), Google Maps API, OpenAI API, Docker, systemd.

GECO S.R.L. — Galliate (NO), Italy

Software Engineer | April 2025 – December 2025

Designed and developed software solutions for the monitoring, security, and automation of critical infrastructure.

- **RTSP Streaming Supervisor – Rome Metro Line C:** Python system for 24/7 supervision of RTSP video streams across 400+ monitors (stations and trains). Critical process management (MediaMTX, ffmpeg, ConVis) with automatic restart and progressive backoff. Logging with credential masking, automatic rotation, and per-process separation. Graceful shutdown on SIGINT/SIGTERM. Secure distribution with Nuitka and binary obfuscation. Collaboration with German company for ConVis integration.
- **SmartAirway Diagnostics – Etihad Airways:** Cross-platform Python tool for enterprise network diagnostics. Analysed Etihad Airways network segments to identify problematic hops and infrastructure nodes. ICMP/traceroute deep path analysis with Scapy, DNS checks, speedtest, network interface monitoring with psutil. Automatic CSV logging for post-mortem analysis. CI/CD pipeline with pre-commit hooks and integrated security scanning (Bandit, pip-audit).

Technologies: Python, ffmpeg, MediaMTX, Scapy, Nuitka, systemd, GitHub Actions, Oracle Cloud OCI (Prometheus/Grafana).

PEROPTYX — Italy, Remote

Data Analyst | September 2024 – March 2025

Analysed, evaluated, and optimised geographic data and digital maps for navigation services using Google Maps, Excel, Python, and proprietary software.

FONDAZIONE L. CLERICI — Mortara (PV), Italy

ICT Teacher – Secondary Education | September 2021 – September 2024

Taught Computer Science, Mathematics, and Cybersecurity at a vocational secondary school. Designed and delivered courses on programming, networking, operating systems, cryptography, and data security.

FIWAY S.R.L. — Alessandria, Italy

IT Specialist | June 2021 – September 2021

Built a web-based cloud monitoring platform for IoT and Industry 4.0. SQL data analysis, Linux server administration, VM configuration, monitoring with Prometheus and Grafana, VPN and network security management.

PERSONAL PROJECTS

JobSearch Command Center — AI-Powered Job Search Platform

github.com/MK023/JobSearch

- Microservices architecture: FastAPI backend + Nginx reverse proxy + PostgreSQL + Redis cache, Docker Compose, MCP server for AI agent integration.
- AI-powered analysis with Claude Haiku/Sonnet: CV-to-job compatibility scoring (0–100), gap analysis with severity and action plans, interview question generation.
- Feature set: multilingual cover letters, follow-up emails, LinkedIn messages, recruiter CRM, Glassdoor ratings cache, API cost tracking, document scanning (PDF/DOCX/XLSX).
- Security: full OWASP Top 10 audit, brute-force lockout (5 attempts/30 min), CSRF Origin validation, session hardening (SameSite strict, 4h expiry), CSP/HSTS/X-Frame-Options, multi-tier rate limiting, CodeQL + Bandit + pip-audit in CI. 342 tests, mypy strict 0 errors.
- Deploy: Fly.io with auto-sleep, GitHub Actions CI/CD (8-stage: lint, format, type-check, security audit, test, Docker build, CodeQL, deploy).

Technologies: Python, FastAPI, PostgreSQL, Redis, Nginx, Anthropic Claude API, Docker Compose, Fly.io, GitHub Actions.

HappyKube — AI-Powered Emotion Analysis Telegram Bot (2+ years)

github.com/MK023/HappyKube

- Multilingual emotion detection (7 emotions) via Groq LLaMA 3.3 70B with integrated sentiment analysis.
- Production-grade architecture: Clean Architecture and DDD. Flask RESTful API with PostgreSQL, Redis caching, Alembic migrations.
- Security hardening: Fernet encryption for PII at rest, prompt injection prevention, cache poisoning prevention, API key auth with hashing, webhook secret validation, input sanitisation pipeline.

Technologies: Python, Flask, PostgreSQL, Redis, HuggingFace Transformers, Groq, Docker, Render.com.

MD Vault — Self-Hosted Knowledge Base with K3s and Terraform

github.com/MK023/md_vault | Live: mdvault.site

- K3s/Kubernetes orchestration: local via k3d (dev), native K3s on GCE e2-small (production); full manifests.
- Infrastructure as Code: Terraform for Google Cloud provisioning (VPC, firewall, compute, GCS backend state), Cloudflare Tunnel.
- FastAPI backend with SQLite FTS5 (BM25 full-text search), multi-format upload, integrated viewers. Win95-inspired frontend (vanilla JS/CSS, zero build step).
- Security: zero-trust access via Cloudflare Tunnel, XSS prevention (DOMPurify), path traversal protection, JWT + bcrypt auth, K3s secret management, automated CronJob backups to Cloudflare R2.

Technologies: Python, FastAPI, SQLite FTS5, K3s, Kubernetes, Terraform, Google Cloud, Cloudflare Tunnel, Docker, Sentry.

RabbitWatch — Super Monitor & Control Plane Stack

github.com/MK023/RabbitWatch

- Monitoring and self-healing stack for cloud/on-premise infrastructure. FastAPI active health checks on critical services (VPN, NAS, RabbitMQ, database, VMs) with automated recovery via centralised Control Plane.
- Full monitoring stack: Prometheus + Alertmanager + Grafana for metrics and alerting, RabbitMQ for event-driven architecture, Python Producer/Consumer for metrics collection and recovery management.
- Infrastructure: designed for AWS EC2 with IAM and VPC for isolation and security, horizontal and vertical scalability. Docker Compose orchestration, Ubuntu 22.04 LTS, systemd integration.

Technologies: Python, FastAPI, Prometheus, Grafana, Alertmanager, RabbitMQ, MongoDB, Docker, AWS (EC2, IAM, VPC), Ubuntu 22.04 LTS.

TorinoParking — Real-Time Parking Availability API

github.com/MK023/TorinoParking

- Async FastAPI (Python 3.12) with PostgreSQL 16 + PostGIS for geospatial queries, Redis 7 caching with orjson/zlib compression and ETag conditional requests (HTTP 304).
- Security-first API design: HMAC-SHA256 API key hashing (zero plaintext storage), sliding window multi-tier rate limiting (20/100/1,000 req/min), security headers, Pydantic input validation, documented threat model (SECURITY.md).
- 51 tests (32 unit + 18 integration + 1 e2e) with testcontainers for PostgreSQL/Redis; GitHub Actions CI/CD; structured logging with structlog.

Technologies: Python, FastAPI, PostgreSQL + PostGIS, Redis, APScheduler, Docker, structlog, Sentry, GitHub Actions.

EDUCATION

Università degli Studi del Piemonte Orientale — Vercelli, Italy

Bachelor's Degree in Computer Science | September 2016 – In Progress

Polish-Japanese Academy of Information Technology (PJAiT) — Warsaw, Poland

Computer Science — Erasmus Programme | July 2018 – March 2019

Istituto Tecnico Commerciale Leardi — Casale Monferrato, Italy

Secondary School Diploma — Business & ICT | August 2005 – July 2010

CERTIFICATIONS

• IT Specialist – Cybersecurity — Cisco Networking Academy | 2022

• AWS Cloud Practitioner + Cloud Computing — Tree Opinio | 2022

• Linux Essential — Linux Professional Institute | 2022

• GitHub Foundations — GitHub | 2025

• MongoDB Python Developer Path — MongoDB | 2024

• Python PCEP [30-02] — Python Institute | 2024

• Foundational C# with Microsoft — freeCodeCamp | 2025

LANGUAGES

• Italian: Native.

• English: B2 (Listening, Reading, Spoken Production, Spoken Interaction, Writing).

Driving licence: B | I consent to the processing of my personal data in accordance with EU Regulation 2016/679 (GDPR).