

JORGE DOMINGUES NUNES

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Pombal, Portugal.

Senior Full Stack Developer Services

Delivered solutions in restricted and controlled environments throughout my career, including engagements with ECB, and the EU Commission. Established practices for secure deployment: strict environment separation. Key expertise: RAG pipelines connecting LLMs to live business data, Agent tooling and semantic layers for AI reasoning, Vector search with embeddings and retrieval strategies, Terraform exposed in UI with multi-step forms and chatbot support, Kubernetes 2-second production deployments, and cognitive memory systems for agents that maintain state and make context-aware decisions.

EXPERIENCE



Founder & Lead Python Developer
10/2025 - Present

Exponential (Agentic Platform Factory)

Agentic AI platform with Python backend and React/Flutter frontends. Multi-model orchestration with fallback strategies across Ollama (local), OpenAI, Anthropic and Google models. Infrastructure-as-Code exposed through UI with Terraform, multi-step forms and chatbot support. Kubernetes-based deployments achieving 2-second time-to-production.

- AI Backend Architecture: Built a Python-based agentic backend with multi-model fallback system supporting Ollama (Llama, Mistral, Qwen local models), OpenAI (GPT-4o), Anthropic (Claude Sonnet/Opus), and Google (Gemini). Automatic model failover ensures 99.9% AI service availability.
- Kubernetes & DevOps: Engineered a Kubernetes deployment pipeline achieving 2-second time-to-production. Fully automated CI/CD with Terraform IaC, container orchestration and auto-scaling for multi-tenant environments.
- Terraform UI Exposure: Exposed Terraform infrastructure provisioning directly into the frontend via multi-step forms, enabling non-technical users to deploy and manage cloud resources through guided chatbot-assisted workflows.
- Frontend Platforms: Developed React web dashboard and Flutter mobile app for cross-platform agent management, real-time monitoring, and interactive chatbot interfaces with streaming LLM responses.
- MCP Server & Agent Orchestration: Built multi-environment MCP servers bridging localhost development and production VPS. Designed agent pipelines with RAG, vector search (Pinecone, Qdrant, ChromaDB), and cognitive memory systems for stateful AI reasoning.
- Stack: Python, FastAPI, LangChain, LangGraph, Ollama, Docker, Kubernetes, Terraform, React, Flutter, PostgreSQL, Redis, Pinecone, Qdrant, ChromaDB, GitHub Actions.



Principal Engineer.

01/2024 - 10/2025

Keyprog

Ecommerce website with Dropshipping for electrical devices for automobile industry. Built scalable backend architecture with Directus CMS + React/TypeScript. Real-time data processing and full CRUD operations.

- AI Integration: Developed AI agents with 29 available MCP tools (Model Context Protocol) server for AI agent orchestration and to relational databases, with exposing Directus SDK and API support for AI-powered content management.
- NodeJS Infrastructure: Fully containerized Docker environment with PostgreSQL database, Redis caching layer, and Nginx reverse proxy with load balancing. Secured with SSL/TLS encryption and two-factor authentication.
- E-Commerce Features: Stripe payment gateway with automated transactional email

With 8+ years building scalable systems, Python, Node.js, TypeScript. Full-stack: APIs, Microservices, React/Vue.js / Astro, Flutter frontends. Agentic AI platform architecture & MVP leadership. AI: LangChain, RAG, Ollama, OpenAI/Anthropic/Google. APIs, vector DBs (Pinecone, Qdrant). Cloud: GCP, AWS, Kubernetes, Docker. CI/CD: GitHub Actions, Terraform, K8s. Frontend: React, Next.js, Flutter, TS. Database: PostgreSQL, Redis, MongoDB. Testing: 95%+ coverage, TDD, Jest, Pytest. Full product lifecycle ownership. Startup experience, fast iterations.

LANGUAGES

English	Fluent	●●●●●
French	Basic	●●●●●
Portuguese	Native	●●●●●
Spanish	Basic	●●●●●

SKILLS

Independent thinker, team player, fast learner, I can quickly get up to speed with any technology.

Comprehensive testing: Up to +95% coverage of my Unit, integration, functional, Asynchronous/Acceptance

Restful API's, GraphQL, AWS, Azure, GPC. Python, Conda, Django, CDN, Kubernetes, Pinecone, Qdrant, Chroma dB, Ollama, MongoDB, JEST, Figma Three.js D3.JS, gRPC, Flutter, Android IOS, Firebase, Flask, Conda. Next.js and their related ecosystems.

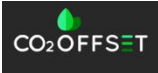
Computer Vision (FastAPI, model training, MongoDB, Pydantic, Chunked Uploads, matplotlib, seaborn, Pytest, Pytest-asyncio)

[RAG-PDF \(Python, a Retrieval-Augmented Generation \(RAG\) project using LangGraph and LangChain\)](#)

[Mediapipe_osc_td \(Python, venv, websockets, numpy, opencv-python\)](#)

workflows, order confirmations and invoice generation. Implemented real-time product and inventory updates via webhook architecture.

- Security & Access Control: Role-based permissions with 4 access levels (Admin, Editor, Client, Public). JWT, OAuth2, OpenID
- DevOps & CI/CD: GitHub Actions pipeline with Husky hooks with Trufflehog scanning.



Senior Fullstack Engineer

04/2023 - 12/2024

Co2Offset.ai

Pombal, Portugal

- CO2OFFSET.AI is a SaaS solution that automatically measures the carbon captured in forests in a cheap, fast and reliable way, helping to grow and maintain forests by rewarding landowners for their protection.
- Implemented infrastructure-as-code using Terraform for multi-environment Cloud-agnostic deployments
- Ansible automation tool for configuration management, application deployment
- Built 200+ containerized API endpoints, high-volume data ingestion.
- Built cloud-native applications on AWS with architecture (IAM, EC2, S3, RDS, SES, ECS)
- Managed CI/CD pipelines in GitHub Actions with automated testing
- Developed frontend applications using TypeScript and React.

- Integrated AI/ML services including computer vision models and LLM frameworks
- Databases: PostgreSQL with PostGIS extension for location services, MongoDB, Redis, ETL). Experience in deploying AI Agents.

- Collaborated directly with Python Microservices for ESA (European Space Agency) collaboration on technical deliverables.
- Translated complex geospatial and AI requirements into development specifications
- Coordinated application lifecycles ensuring multiple services worked together

- Bureau Veritas audit: achieved scientific certification, 3.5M ROI.
- Firebase-admin, Google-cloud-datastore, Torch, torchvision, pillow, swagger.
- Digital twin between Client Forests and 3D Graphic engine in Three.js.
- Scientific Computing & Visualization: scipy, Utilities: requests, aio, http, pytest-cov



Technical Consultant
03/2023

03/2020 -

European Central Bank

Frankfurt am Main, Germany

- Contributed to the latest main EBC website redesign and maintenance of the core Content Management System. Established robust privacy and security measures and ensuring data consistency across the platform.
- Partnered closely with the multimedia team to deliver seamless real-time integration of the President's live streaming for enhancing staff member's engagement and media coverage.
- Drove a large-scale website redesign powered by a Java code handled millions HTML files of articles published in multilingual setups and internationalization i18n modules, working directly with the ECB's Design team and a tech stack of JavaScript, HTML, Twig, Webpack, NPM, Grunt, SCSS, Angular, PHP, and MySQL, Microsoft Active Directory, Powershell scripting across Microsoft's Active Directory and multiple servers of the organization infrastructure, MVC and SOLID coding methodology
- Streamlined version control and releases via GitLab, JIRA, ensuring smooth pull request workflows deployment cycles. Active Directory.
- Implemented comprehensive end-to-end testing strategies for modules and services, boosting reliability and reducing regressions,
- Configured and maintained Red Hat Linux servers, Apache virtual hosts for development team and deployment States SSL SHA- 356 certificates, resulting in robust, secure development environments, Bash and Python scripting.
- Reinforced security protocols by applying Content Security Policy (CSP), mitigating XSS and other securing servers to prevent unauthorized access.
- Implemented Elasticsearch multilingual search engine capable of indexing and crawling server content in 24 languages, serving millions of pages, emails and links in real-time to support diverse user needs both internal CMS and public Website. ETL.

- Produced thorough technical documentation, ensuring seamless knowledge transfer and minimizing gaps between cross-functional teams



Senior Drupal Developer

04/2018 - 01/2020

European Commission

Brussels, Luxembourg

- Led website redesign and oversaw Drupal migrations
- Designed a relational DBMS for tens of thousands of users.
- Bridged technical and business needs.
- Coordinated with project managers, developers, and stakeholders.
- Develop and optimize MySQL queries and Apache configurations.
- Developed batch processing API tools and Drupal, Drush-cli and Modules.
- Reduced deployment times and configuration errors.
- Implemented unit tests with Jest and React Testing Library.
- CI/CD with Git and Jenkins.
- WCAG accessibility compliance.
- Agile with Confluence.
- Recognized for analytical thinking and proactive troubleshooting.
- Communicated clearly with all audiences. SEO
- Follow WCAG &ARIA guidelines to ensure Drupal accessibility compliance

Macromedia Flash Web Developer

06/2006 - 06/2009

Pixweb.pt

Pombal, Portugal

- Designed and built dynamic, data-driven websites for SMB clients across Portugal over a 3-year tenure, combining Macromedia Flash front-end animations with PHP server-side logic backed by MS SQL Server.
- Developed interactive Flash banners, micro-sites and corporate presentations using ActionScript with reusable component libraries that cut delivery time on new projects by ~30%.
- Designed and maintained MS SQL Server schemas (stored procedures, views, indexes) powering content management, product catalogs and customer-area features for client websites.
- Built PHP back-end modules (authentication, contact forms, newsletter, admin dashboards) integrated with MS SQL via ODBC, following clean separation between presentation, logic and data layers.
- Implemented dynamic XML data feeds between Flash front-ends and PHP/MS SQL back-ends, enabling real-time updates of catalogues, news and gallery sections without redeploying the SWFs.
- Worked closely with designers and clients across the full project lifecycle — requirements gathering, prototyping, deployment to Windows/IIS hosting and ongoing maintenance.

EDUCATION



Computer Graphics and Multimedia Engineering

09/2003 - 06/2006

Instituto Politécnico de Viana do Castelo

- Completed advanced coursework in Mathematics, including Linear Algebra, Calculus, with strong analytical and problem-solving focus
- Developed extensive programming skills in C, C++ and Java, with emphasis on object-oriented design and real-time systems
- Built expertise in 3D graphics programming, including OpenGL and DirectX, leveraging GPU hardware acceleration for real-time rendering
- Applied knowledge of computer graphics pipelines, shading, and rendering techniques in practical projects
- Experienced with AutoCAD for technical design and modeling
- Utilized UML for system design, modeling, and documentation of software architectures
- Applied UX/UI design principles to create intuitive and user-centered interfaces
- Gained solid foundation in Information Systems Programming and software development methodologies

- Developed understanding of IT Security principles, including secure coding and system protection concepts
- Studied Communication Networks, including protocols, architectures, and data transmission fundamentals
- Strengthened technical communication through Technical English and collaborative project work
- Built strong foundation in Programming and Algorithms, focusing on logic, data structures, and efficient problem-solving

Computer Technician

03/2000- 06/ 2003

Escola Secundária de Pombal

- Applied strong knowledge of algorithms and problem-solving techniques to optimize software performance and troubleshoot technical issues
- Developed and maintained applications using C, Pascal, and Microsoft Visual Basic, including support for legacy systems
- Utilized Microsoft Excel (advanced formulas, macros, data analysis) and Microsoft Office Suite for reporting, documentation, and automation tasks
- Managed and queried databases using Microsoft SQL Server (MSSQL), including data manipulation, backups, and performance tuning
- Administered and maintained Linux systems, including user management, shell scripting, and system configuration
- Configured and supported email systems (SMTP, IMAP, POP), ensuring secure and reliable communication services
- Diagnosed and resolved network issues using knowledge of networking protocols (TCP/IP, DNS, DHCP)
- Installed, configured, and maintained computer hardware, operating systems, and peripheral devices
- Provided technical support to end-users, troubleshooting software and hardware issues efficiently
- Applied principles of mathematics and physics to enhance analytical thinking and technical problem-solving
- Documented processes, system configurations, and troubleshooting procedures for internal use