

Guillem Navarro Vargas

Head of AI | AI Program Leadership | Generative AI, Agentic AI and On-Premise AI Platforms

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PROFESSIONAL SUMMARY

Head of AI who founded and leads the AI department of a 400-engineer engineering company, reporting directly to the CEO. Leads AI initiatives end to end: strategy and business case, executive sponsorship, team building, architecture, delivery and governance. Owns an on-premise generative AI platform (Large Language Models, Retrieval-Augmented Generation, agentic AI) running on NVIDIA GPUs and hardened Kubernetes, with data sovereignty, security and cost per token designed in from the start. Industrial Technologies Engineer (UPC-ETSEIB) with master's degrees in Energy Engineering and in Industrial Engineering and a postgraduate in data centre energy management (UPC School, Schneider Electric). Background in finite element simulation (CAE), industrial plants and IT access management in a regulated pharmaceutical company. NVIDIA-Certified Associate in Generative AI LLMs.

CORE COMPETENCIES

AI Strategy and Roadmap | AI Project and Program Leadership | Business Case Development | Executive Communication | Cross-functional Leadership | Team Building, Hiring and Onboarding | Mentoring | OKRs and KPIs | Process Automation | Generative AI | Large Language Models (LLMs) | Retrieval-Augmented Generation (RAG) | Agentic AI and AI Agents | LLM Fine-tuning (LoRA) | LLM Inference Optimisation | LLMops and MLOps | Token Economics (Cost per Token) | NVIDIA AI Stack | Kubernetes | Security Hardening | Data Sovereignty | AI Governance (EU AI Act, ISO/IEC 42001) | AI Risk Classification | Physical AI | Digital Twins | Finite Element Analysis (FEA) | Energy Engineering

PROFESSIONAL EXPERIENCE

Head of AI — BTECH (Barcelona Technical Center), Barcelona, Spain 04/2025 – Present

- Founded the AI department of a 400-engineer engineering company: defined the AI strategy and priority use cases, built the business case, secured executive approval and set up the area from scratch, reporting directly to the CEO.
- Lead the AI team, including hiring, onboarding and mentoring, and drive cross-functional delivery with every department: leadership, finance, HR, sales, quality, legal, engineering and production.
- Lead the design and delivery of an enterprise-intelligence platform on in-house infrastructure: LLMs fine-tuned with LoRA, Retrieval-Augmented Generation (RAG) evolving toward ontology-augmented generation, and agentic AI with memory systems; own the roadmap from RAG to a company ontology.
- Delivered process automation and KPI systems with finance, cutting tasks worth three months of a person's annual work down to hours.
- Architected on-premise compute for AI inference and training on NVIDIA DGX Spark (Grace Blackwell GB10) with Kubernetes on RKE2; optimised LLM inference on NVIDIA GPUs with TensorRT.
- Built security, data sovereignty and token economics into the design: agents inherit the permissions of the invoking user, a router decides per query between in-house and external models by sensitivity and cost, and the stack is hardened layer by layer (CIS, DISA STIG, FIPS 140-2), so sensitive data never leaves the company.
- Physical AI: set up a simulation environment where engineering geometry, physics and vision-language models share one scene, to train humanoid robotics before the robot exists.
- AI governance: played a significant part in adopting the EU AI Act (Regulation (EU) 2024/1689) and an ISO/IEC 42001-aligned AI management framework, including use-case risk classification and internal training.

CAE Engineer and AI Integration Lead — BTECH, Barcelona, Spain 10/2023 – 04/2025

- Performed Finite Element Analysis (FEA) of automotive components across the full Computer-Aided Engineering (CAE) chain: ANSA pre-processing and meshing, Pam-Crash explicit dynamics and impact, Abaqus static and non-linear analysis (material, contact, plasticity), Meta post-processing with repeatable reports.
- Introduced LLM engines and RAG architectures into the simulation workflow, the origin of the company's AI department.

IT Engineer and Process Automation Specialist — Industrial company 03/2016 – Present

- Run the plant's digital backbone, held alongside the rest of my career: optimised distribution, data transfer, automated backups, software updates and Industrial IoT integration.
- Played a key part in developing an 86 kW self-consumption photovoltaic plant: sizing against the real load curve, permitting and commissioning.
- Defined the ERP architecture and led its roll-out across industrial and logistics operations; access management, network segmentation, encryption and biometric attendance control.

R&D Consultant — FI Group 06/2022 – 12/2022

- Managed industrial clients end to end through R&D and innovation incentives: qualified eligible projects, wrote the technical reports and processed R&D tax deductions, social-security rebates and public grants, both self-assessed and certified.
- Ran the liaison with clients and evaluating bodies, defending the dossiers before clients and the tax authority.

IT Access Control Management (Internship) — Grifols S.A. 12/2020 – 07/2021

- Joined a regulated pharmaceutical company as a level-2 helpdesk technician and was promoted to IT access control management.
- Managed the Active Directory account lifecycle (joiners, leavers, groups, delegation) and SAP roles, authorisations and segregation of duties.

Corporate Communications Director — Fòrum ETSEIB (UPC) 09/2020 – 10/2021

- Led the corporate communications area and its team, my first team: negotiation and company relations for the school's careers forum.

Other experience: Electric Vehicle Repair Technician, Robotic Dreams S.L., Pineda de Mar (09/2017 – 09/2018), diagnosing and repairing batteries, motors and power electronics | Camera Operator, Ràdio Calella Televisió (10/2019 – 01/2021), live sports broadcasts | Volunteer, European Blockchain Convention, Barcelona (02/2023), event production.

EDUCATION

Postgraduate in Data Centre Energy Management — UPC School and Schneider Electric	05/2026 – 09/2026
Master's Degree in Energy Engineering — UPC BarcelonaTech, ETSEIB	09/2022 – 05/2025
Master's Degree in Industrial Engineering — UPC BarcelonaTech, ETSEIB	09/2022 – 05/2025
Bachelor's Degree in Industrial Technologies Engineering — UPC BarcelonaTech, ETSEIB	09/2018 – 07/2022
Large Language Model Agents (MOOC) — UC Berkeley	01/2025 – Present
Degree in Psychology — UNED	10/2026 – Present
Deep Tech to Market — UPC School and Fractus-UPC Deep Tech Hub	Starting 11/2026

CERTIFICATIONS

NVIDIA-Certified Associate: Generative AI LLMs (NVIDIA, 2025) | Deploying RAG Pipelines for Production at Scale (NVIDIA Deep Learning Institute, 2025) | Drone Pilot Certification (AESA, Spanish Aviation Safety Agency, 2023) | Mobile App Development (Universidad Complutense de Madrid, 2020) | Certified SolidWorks Associate, CSWA (Dassault Systèmes, 2019, ID C-6J59DCPFSL)

PROJECTS AND THESES

Master's thesis: a complete Energy Management System, from sensors to a peer-to-peer market (UPC-ETSEIB, 2025). Prototype validated end to end on Raspberry Pi: current and voltage sensing, Kubernetes (MicroK8s), InfluxDB and Grafana in real time, hourly electricity market prices (PVPC), a local LLM as the analyst, and a peer-to-peer energy market designed on Cardano (Plutus smart contracts, decentralised identity, NFT traceability).

Master's thesis: from prototype to business, the EMS case (UPC-ETSEIB, 2025). European energy management market study, Technology Readiness Level (TRL) comparison against market leaders and a ten-year business plan. Confidential until 2030.

Bachelor's thesis: the TCA cycle as a clean energy source (UPC-ETSEIB, 2022). Complete-oxidation glucose biofuel cell (full tricarboxylic acid enzymatic cascade) sized to power a pacemaker for the patient's lifetime; Ansys CFD of blood flow at the arterial bifurcation (non-Newtonian, pulsatile); AHP multi-criteria analysis. Patent filing initiated.

TALKS, COMMUNITIES AND OPEN SOURCE

Speaker, "Agentic systems applied to private investigation", DETCON, Barcelona (2026): agentic systems running locally and in isolation, demonstrated live | Perplexity AI Business Fellowship, first cohort (2025) | AutoCFD, Automotive CFD Prediction Workshop, working group member | Hugging Face open-source community, active member (models and open robotics) | NVIDIA OpenShell, contributor of bug fixes to early versions

TECHNICAL SKILLS

Level of use: Design and operate = I decided how it is built and run it; Hands-on = used myself on projects; Integrated = considered, not as a specialist.

Design and operate: LLM fine-tuning (LoRA), Retrieval-Augmented Generation (RAG), agentic AI and autonomous agents, memory systems, vLLM, LLM gateway and tracing (LiteLLM, Langfuse), NVIDIA DGX Spark (GB10), NVIDIA GPU Operator, DCGM, Kubernetes, RKE2, containerd, Calico, ingress-nginx, MetalLB, cert-manager, Argo CD (GitOps), HashiCorp Vault, External Secrets Operator, authentik with Microsoft Entra ID, token economics, security hardening (CIS, DISA STIG, FIPS 140-2), EU AI Act, ISO/IEC 42001, AI use-case risk classification, ERP architecture, access control.

Hands-on, generative AI and agents: tool calling, guardrails, NVIDIA NeMo Agent Toolkit, Microsoft Presidio (PII anonymisation), vision-language models (VLMs), speech recognition and synthesis (Parakeet, Magpie TTS), Audio2Face, Whisper, LangChain, Open WebUI, TensorFlow, TimesFM; open models: Nemotron, Cosmos Reason, Qwen, Llama, Mistral, Gemma, DeepSeek.

Hands-on, NVIDIA stack: CUDA, TensorRT, TensorRT-LLM, NVIDIA NIM, NVIDIA Dynamo, NeMo Retriever, NeMo Guardrails, cuVS, cuOpt, NCCL, NVLink, Omniverse, Isaac Sim, Cosmos, PhysicsNeMo, Warp, OpenShell.

Hands-on, platform and MLOps: Rancher, Fleet, vCluster, Kueue, Headlamp, GitLab CI, Kaniko, Helm, Skopeo, Longhorn, MinIO, CloudNativePG, PostgreSQL, Redis, Valkey, ClickHouse, Milvus (vector database), Prometheus, Grafana, Loki, NeuVector, NetworkPolicy, gVisor, Docker, Istio, Coder, Ubuntu, Alpine, Linux, Windows Server, Dell servers.

Hands-on, simulation and CAE: Finite Element Analysis (FEA), ANSA, Pam-Crash, Abaqus, Meta, Ansys (CFD), SolidWorks, MATLAB and Simulink, Autodesk, Isaac Sim, Newton, digital twins.

Hands-on, life sciences: computational biology (AlphaFold), glucose biofuel cells for implantable devices, CFD of blood flow, IT in a regulated pharmaceutical environment.

Hands-on, programming and enterprise systems: Python, PHP, Node.js, Bash, Git, LaTeX, InfluxDB, n8n, Power Automate, SAP, Active Directory, Azure, Citrix, VPN, Odoo, Moodle, Jira, Wiki.js, Drupal.

Hands-on, energy and industry: solar PV, Industrial IoT, smart grids, energy storage, hydrogen, data centre energy management, Minitab.

Integrated: ISO/IEC 27001, ISO 9001, TISAX, conformity assessment.

Leadership: team leadership, project management, hiring and onboarding, executive communication, negotiation, mentoring, OKRs and KPIs, cross-functional work.

Languages: Catalan (native), Spanish (native), English (C1, certified), French (A2, certified).

RECOMMENDATION

Mireia Norberto, Director of IT Services at Grifols (LinkedIn): "[H]is commitment and performance have been excellent from day one [...] willing to learn new things and open to changes, seeing them as a challenge. A great team player."

Detailed description of every role, project and tool: <https://guillemnavarro.com/en/> and <https://guillemnavarro.com/en/map.html>