

# Álvaro Arcos García

## CTO & AI Director · GenAI and Agentic AI Systems

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### SUMMARY

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Engineering leader with 15 years of production experience and a PhD in Artificial Intelligence. CTO and AI Director since 2018, leading the shift from bespoke machine-learning deployments to portfolio-wide agentic AI programmes for global clients. Hands-on architect of LLM agent pipelines, retrieval-augmented assistants, document intelligence platforms, and computer vision products on AWS, Azure, and Google Cloud, combining deep technical delivery with team mentoring and product strategy.

### CORE COMPETENCIES

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- LLM agents & planner-executor orchestration
- Retrieval-augmented generation (RAG)
- Document intelligence & GenAI copilots
- Machine learning & computer vision delivery
- ML platforms, MLOps & model governance
- Cloud architecture (AWS, Azure, Google Cloud)
- Technical leadership & mentoring
- Product strategy & roadmap execution

### PROFESSIONAL EXPERIENCE

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#### CTO & AI Director — MCCM Innovations 2018 – Present

Seville, Spain · AI consultancy delivering ML, GenAI, and agentic systems for global clients

- Direct AI strategy and delivery across the client portfolio; scaled the organisation from bespoke ML deployments to company-wide agentic AI programmes launched from 2022 onward.
- Architect autonomous planner-executor agent pipelines with tool use, supervisory feedback loops, and human-in-the-loop guardrails for operations, compliance, and customer-service teams.
- Built document intelligence platforms automating extraction, classification, and validation of invoices, customs records, legal dossiers, and regulated paperwork.
- Delivered retrieval-augmented assistants providing grounded answers over policy libraries, product documentation, and training manuals, with systematic human-in-the-loop evaluation.
- Led GenAI copilots for regulated industries with auditability, policy-aware orchestration, and robust evaluation workflows.
- Shipped computer vision products for infrastructure inspection and manufacturing quality assurance, plus forecasting platforms powering energy demand, industrial production, and sales planning.

**Environment:** Python, LangChain, PyTorch, TensorFlow, FastAPI, MCP, n8n, AWS, Azure, Google Cloud

#### AI Research & Software Development Engineer — University of Seville 2015 – 2018

Seville, Spain · Applied research in machine learning, deep learning, and ubiquitous computing

- Co-created deep-learning traffic sign recognition systems that ranked #1 on the public GTSRB benchmark, published in three JCR-indexed journals.
- Developed time-series forecasting and anomaly detection pipelines for live data streams.
- Designed human activity recognition systems using CNN, RNN, and LSTM architectures.
- Built context-aware mobile applications and ambient sensing toolkits (Bluetooth, Wi-Fi, audio, motion) integrated with Google Cloud services for health and workplace analytics.

**Environment:** Python, TensorFlow, Keras, PyTorch, Caffe, OpenCV, Android, Google Cloud

**Full-Stack Web & Android Developer** — Early career: Isotrol, SGC-Online, 2010 – 2015

Yobapp, Prodetur

Seville, Spain · Product engineering and consulting roles across public sector, startups, and e-commerce

- Co-founded Yobapp, an award-winning startup generating native Android apps from JSON specifications through model-driven development, with automated build and delivery infrastructure on AWS.
- Engineered nationwide employment platforms and marketplaces, including scrapers aggregating daily job offers from 50+ external sources and payment integrations.
- Developed and maintained social services platforms for city councils, integrating with Seville's Citizen Registry and delivering secure, regulated workflows.

**Environment:** PHP, Java, JavaScript, MySQL, PostgreSQL, Oracle, Android, AWS

## EDUCATION

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**PhD in Computer Science — Artificial Intelligence**, University of Seville · 2016 – 2018

**University Degree in Computer Science**, University of Seville · 2015 – 2016

**Master's in Computer Science**, University of Seville · 2012 – 2013

**Bachelor's in Computer Science**, University of Seville · 2007 – 2011

## SELECTED PUBLICATIONS

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**Deep neural network for traffic sign recognition systems** — *Neural Networks*, 2018. State-of-the-art performance on the GTSRB benchmark with spatial transformers and stochastic optimisation.

**Evaluation of deep neural networks for traffic sign detection systems** — *Neurocomputing*, 2018. Compared detection architectures to optimise latency and accuracy for real-time perception.

**Exploiting synergies of mobile mapping sensors and deep learning for traffic sign recognition systems** — *Expert Systems with Applications*, 2017. Combined LiDAR, imagery, and neural networks to scale acquisition pipelines.

## TECHNICAL SKILLS

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**GenAI & Agents:** LLM agent orchestration, RAG, LangChain, MCP, n8n, prompt & evaluation workflows

**Machine Learning:** PyTorch, TensorFlow, Keras, computer vision, time-series forecasting, MLOps & model governance

**Engineering:** Python, FastAPI, SQL & NoSQL (PostgreSQL, MySQL), JavaScript, Android, containerization & orchestration, observability

**Cloud:** AWS, Azure, Google Cloud

**Languages:** Spanish (native), English (full professional proficiency)