David Camilo Navarro Saiz

Machine Learning Engineer | Computer Vision Expert | AI & Automation Specialist

(+57) 300 775 1361 | dcnavarros97@gmail.com | GitHub | LinkedIn

Summary

Machine Learning and Generative AI Engineer with 6+ years of experience architecting and deploying advanced AI solutions across multiple industries. Proven track record designing scalable multi-agent systems using AutoGen, Langchain, and LLMs, with strong emphasis on real-time conversational agents and MCP (Model Context Protocol) server infrastructure. Specialized in LLMOps, Retrieval-Augmented Generation (RAG), and vector database integration for personalized, high-performance AI systems.
Expert in leading cross-functional teams and building end-to-end automation pipelines—from computer vision systems for industrial automation to cloud-native AI agents. Proficient in Python, FastAPI, cloud platforms (Azure, AWS), and no-code tools for business automation. Strategic and technical leader capable of translating complex challenges into scalable, user-centric solutions that drive innovation and measurable impact.

Skills

Skills

Programming Languages and Frameworks	Python, FastAPI, Flask, React
Machine Learning and LLM Tools	PyTorch, TensorFlow, Keras, Langchain, Langsmith, LangGraph, LlamaIndex, AutoGen, Pydantic AI
AI Concepts and Technologies	Generative AI, Conversational Agents, Retrieval-Augmented Generation (RAG), LLMOps, Vector Databases, PGVector
DevOps, MLOps and Automation	Docker, Git, CI/CD, Cloud Deployment, Business Automation, Web Scraping, Make.com, Zapier, n8n, Retell, Vapi
Cloud and Database Technologies	Microsoft Azure, AWS, SQL, NoSQL, PostgreSQL, Cloud Services
Project and Team Management	Agile methodologies, Sprint planning, Budgeting, Cross-functional team leadership
Data Science and Analytics	Data Analysis, Image Processing, Statistical Modeling, Mathematical Optimization
Languages	English (Fluent), Spanish (Native)

Technical Experience

Generative AI Engineer **Feb 2025 — Present**

Kmeleon

- Architected and deployed a modular, scalable AI system leveraging the Model Context Protocol (MCP) to standardize communication between AI agents and external tools, facilitating interoperability and context sharing across multiple MCP servers.
- Designed and deployed a modular, multi-agent system using AutoGen, Langchain, and Pydantic AI—enabling real-time conversational agents with memory, tool usage, and collaborative task execution.
- Established LLMOps best practices for the deployment, monitoring, and maintenance of large language models, ensuring efficient lifecycle management and integration with vector databases for Retrieval-Augmented Generation (RAG) solutions.
- Developed a user-centric platform allowing clients to create and configure custom AI agents, enhancing personalization and adaptability within enterprise environments.
- Integrated MCP servers with Microsoft Teams, enabling seamless interaction between users and AI agents, thereby improving communication workflows and productivity.
- Engineered real-time conversational agents utilizing AutoGen, supporting multi-turn dialogues with memory retention and tool usage, enhancing user engagement and task efficiency.

David Camilo Navarro Saiz

Machine Learning Engineer | Computer Vision Expert | AI & Automation Specialist

(+57) 300 775 1361 | dcnavarros97@gmail.com | GitHub | LinkedIn

- Implemented scalable AI architectures aligned with Microsoft Azure infrastructure, ensuring robust performance and reliability across various Generative AI applications.

Machine Learning Engineer **Apr 2024 — Feb 2025**

SOUTHDESK

- Pioneered the development of RAG systems featuring vector databases and LLM integration; reduced deployment time for new features facilitating faster iterations and responsiveness to customer feedback.
- Created multiple business automations using no-code tools integrated with GoHighLevel CRM, improving operational efficiency.
- Designed and deployed AI-powered workflows for lead generation, client onboarding, and personalized marketing campaigns.
- Built web scraping tools for automated data extraction and lead generation, reducing manual workload and improving outreach scalability.

Machine Learning Team Leader **Jun 2023 — Apr 2024**

El SOL: Neighborhood Educational Center

- Designed, developed and maintained a chatbot system using React, FastAPI, LLMs, RAG, Langchain, Langsmith, and PG Vector.
- Implemented RAG systems with preprocessing, filtering, reranking for real-time personalized recommendations.
- Created a document processing platform supporting multiple formats analyzed by LLMs.
- Delivered LLM-based automation projects: form filling (speech recognition), personalized reports, healthcare plans, user feedback.
- engineered CI/CD workflows and MLOps accelerating deployment cycles by 40%

Computer Vision, AI Developer and Team Leader **May 2019 — Apr 2023**

INTECOL SAS *Medellin, Colombia*

- Led a team of 10 engineers, delivering 30+ machine vision projects for industrial automation.
- Developed and optimized computer vision solutions using CNNs, Python, and C++.
- Conducted and integrated machine vision desktop applications with PyTorch, TensorFlow, and Keras.
- Implemented YOLO models for human behavior analysis, enhancing security and operations.
- Managed project lifecycles, budgets, resources, and cross-functional teams.

COVID-RX Diagnosis **Dec 2020 — Nov 2021**

University of Magdalena *Colombia*

- Engineered a CNN-based diagnostic system for COVID-19 and pneumonia using chest X-ray images, employing PyTorch obtaining 96% accuracy in diagnosis.
- Trained, tested and optimized multiple models including VGG19, Densenet, Mobilenet, Alexnet, EfficientNet, InceptionV3, ResNet, RexNet, Inception-ResNet, and Xception.
- Curated a dataset of 36,000+ images from Kaggle and GitHub, providing a comprehensive training set for AI models.
- Built a user-friendly Python desktop interface with QT and a Flask-based web application for remote diagnosis.
- Leveraged AI for radiometric image analysis, enabling fast, accurate, and affordable COVID-19 detection without requiring expert radiologists.

David Camilo Navarro Saiz

Machine Learning Engineer | Computer Vision Expert | AI & Automation Specialist

(+57) 300 775 1361 | dcnavarros97@gmail.com | GitHub | LinkedIn

Education

B.Sc. in Physical Engineering , *Universidad Nacional de Colombia, Medellin* – Built a strong foundation in mathematics, physics and engineering principles, allowing the design and development of innovative technologies and adaptability to dynamic technical environments.

LangGraph: Develop LLM-powered AI Agents , *Udemy* – Hands-on experience in building, deploying, and managing AI agents using LangGraph and large language models.

AI-Agents: Automation and Business with LangChain and LLM Apps , *Udemy* – Developed AI-driven automation solutions for business processes using LangChain, improving operational efficiency.

AWS Certified Machine Learning Specialty , *Udemy* – Proficient in designing, implementing, and deploying scalable machine learning models on AWS infrastructure.

LLM Engineering: Master AI, Large Language Models and Agents , *Udemy* – Advanced knowledge in building, optimizing, and deploying large language models and AI-driven applications.

DS4A (Data Science for All) , *Correlation One – MinTIC* – Comprehensive training in data analysis, statistical modeling, and machine learning techniques.

MLOps Specialization , *Duke University (Coursera)* – Expertise in MLOps practices, including integration of the CI / CD pipeline, model deployment and lifecycle management.

DeepLearning.AI Specialization in GANs, TensorFlow, and Deep Learning , *Coursera* – In-depth understanding of deep learning frameworks, including GANs and TensorFlow.

Image Prediction with Deep Learning , *SENA Colombia Productiva y Fedesoft* – Practical experience in developing deep learning models for image prediction and analysis.

Natural Language Processing Specialization , *Coursera* – Specialized in NLP techniques, including text processing, sentiment analysis, and transformer-based architectures.

Professional Engagements

Conference Speaker – SICC 2019: Presented a computer vision project on pupil tracking using CNNs and machine vision techniques, demonstrating innovative applications in educational technology.

Researcher – National University of Colombia: Contributed to research on holography and image reconstruction using CNNs, enhancing image quality and computational efficiency.

Lead Developer – CNN-Based Injury Detection System: Led the design and development of a thermography-based AI system for early injury detection, improving the accuracy and efficiency of medical diagnostics.

Co-Instructor – National University of Colombia: partnered with INTECOL SAS to design and teach a Computer Vision course, focusing on image processing, deep learning, and real-world AI applications.