

Alejandro Miranda Franco

Solutions Architect | Machine Learning and AI Engineer | Full-Stack Engineer

Mexico City, Mexico | mfhalejandro@gmail.com | +52 55 1842 9636 (WhatsApp)

[linkedin.com/in/alejandro-miranda-franco-b92294166](https://www.linkedin.com/in/alejandro-miranda-franco-b92294166) | github.com/mfhalejandro | mfhalejandro.com

Preferred initial contact: WhatsApp or email to arrange a call.

PROFESSIONAL PROFILE

I have 6 years of experience in software development, including 4 years focused on machine learning and artificial intelligence.

I build full-stack products and AI solutions for process automation. My work combines cloud architecture and multimodal data processing using deep learning, reinforcement learning, natural language processing and computer vision (including OCR). In generative AI, I adapt and build LLMs, design intelligent agents and orchestrate multi-agent systems using agentic AI, RAG and semantic search.

I work across the entire software lifecycle, from requirements gathering and architecture design to integration, deployment and production operations. I have experience working on technology projects with multidisciplinary teams, collaborating closely with executive, technical and operational stakeholders.

I am a graduate in Applied Mathematics and Computing, with diploma programs in Data Science, AI Engineering and Deep Reinforcement Learning. I am currently studying Applied LLM Engineering and Agentic AI.

I enjoy solving complex problems.

TECHNICAL SKILLS

ML and AI: Python, TensorFlow and TensorFlow.js, Keras, PyTorch, scikit-learn, Gymnasium, CNNs, OCR, speech-to-text and text-to-speech; model training, evaluation, inference and deployment.

Generative AI and data: Gemini API, ChatGPT API, RAG, Medallion architecture, embeddings, CLIP, vector search with algorithms such as FAISS, diffusion models.

Reinforcement learning: MDPs, agents, environments, policy gradients, Q-learning.

Data warehouses: Snowflake, Databricks, BigQuery.

Vector databases: Pinecone and Pinecone CLI.

Full-stack: JavaScript, PHP, Java, Go, C/C++, SQL; React, Next.js, Vue.js, Nuxt, Node.js, Django, FastAPI, Laravel, Terraform.

APIs: REST APIs and GraphQL.

Cloud: AWS, Azure, GCP, Vultr, Contabo.

CLI: AWS CLI, gcloud CLI, Azure CLI.

BaaS: Amplify (Gen 1), Amplify (Gen 2), Firebase, SWA CLI, Supabase.

DevOps: CI/CD and CT, Git, GitHub, Azure DevOps.

AI-assisted software engineering: Spec-Driven Development (SDD), harness engineering for coding agents, multi-agent orchestration, quality gates and verification workflows.

Automation: n8n, Make and custom integrations with Telegram, WhatsApp, Gmail, Google Calendar, Drive, Facebook, Instagram, LinkedIn, TikTok and YouTube, among others.

Security: ISO 27001 internal auditor.

PROFESSIONAL EXPERIENCE

Mexico City | Nov 2025 – Present – SM Ingeniería | Solutions Architect

- Design and implement full-stack and AI solutions for geotechnical operations, marketing and in-house development, covering requirements gathering, cloud architecture, automation, deployment and support.
- Developed workflows for automatic invoice extraction using OCR and identification through Telegram, and a WhatsApp-based financial management tool to track project accounts and expenses.

- Configured digital infrastructure and domain-based email accounts, and developed automation for vehicle records and geotechnical campaigns.
- Manage and supervise geotechnical campaigns, including the Saltillo–Nuevo Laredo Railway and the Tecate–Mexicali Photovoltaic Park, coordinating technical, operational and executive teams.

Mexico City | Jul 2022 – Aug 2025 – Certificación Digital Online | Software Developer | ISO 27001 Internal Auditor

- Designed and deployed a custom 11-layer CNN in production to verify official IDs in real time: 26,112 images, average validation accuracy above 98% and inference every 0.5 seconds using TensorFlow, Keras and TensorFlow.js. Evaluated its performance against EfficientNetB0, MobileNetV2, SNet and SqueezeNet; selected the custom architecture for its balance of accuracy, latency and browser resource usage.
- On con-certeza.mx, developed liveness detection and electronic signature with ID verification for Audi and general users, the Fecha Cierta module for Viva Aerobus, and the promotional website certificaciondigital.online.
 - Led the successful 2024 ISO 27001 recertification as Internal Auditor, and maintained tracker.con-certeza.mx for digital campaign monitoring and analysis.

Remote, USA | Jan – Jul 2022 – Interstack | Software Developer

- Developed internal tools, including tracker.con-certeza.mx, to monitor traffic and advertising campaign performance in digital strategy and marketing.
- Conducted security research and assessments to support executive-level decisions.

Mexico City | 2020 – 2022 – FES Acatlán | Full-Stack Developer

- Developed a web system to manage drinking water testing at FES Acatlán, with color-coded status indicators for users, result uploads by laboratory staff and detailed reports for management.

Mexico City | 2020 – 2022 – SM Ingeniería | Full-Stack Developer / Cloud Solutions

- Developed the corporate website sm-ingenieria.mx, internal tools and cloud deployments, and automated Facebook, Instagram and LinkedIn posts using Make.

SELECTED PROJECTS

Real-time ID verification | CNN + Full-Stack | virm.mfhalejandro.com

Complete technical case study of the computer vision model deployed to validate Mexican voter IDs (INE) and passports in electronic signature workflows.

Mirepública | Medallion architecture + vector search | mirepublica.mfhalejandro.com

Platform in the final deployment stage; designed its Bronze/Silver/Gold organization, embeddings and semantic retrieval over public information.

SM Ingeniería | ML Engineer: Full-Stack + Chatbot | sm-ingenieria.mx

Certificación Digital Online | Full-Stack | certificaciondigital.online

EDUCATION

2018 – 2021 – FES Acatlán, UNAM | Bachelor's Degree in Applied Mathematics and Computing

- Machine learning and data: Machine Learning, Data Mining, Forecasting and Distributed Databases.
- Probability and statistics: Probability, Univariate and Multivariate Statistics, Stochastic Processes and Stochastic Simulation.
- Applied mathematics: Linear Algebra, Optimization, Univariate and Multivariate Calculus, Differential Equations and Numerical Methods.
- Computing and mathematical foundations: Algorithm Analysis, Discrete Mathematics, Cryptography, Modular Algebra and Number Theory.

2022 – FES Acatlán, UNAM | Diploma Program in Data Science

Data quality and ingestion; supervised classification and regression models; unsupervised models for dimensionality reduction and clustering; neural networks and convolutional neural networks.

2026 | Augmented Humans | Diploma Program in AI Engineering

Multimodal data engineering and Medallion architecture; Pub/Sub, embeddings, CLIP, PCA/t-SNE and latent spaces; deep learning, CNNs and transfer learning; Transformer architecture and LLMs; RAG, grounding and agentic AI with Google ADK and MCP/A2A; DevOps/MLOps and production deployment.

2026 | Actumlogos | Deep Reinforcement Learning Course

MDP/POMDP, Monte Carlo, dynamic programming and TD methods; SARSA, Q-learning, Dyna-Q, DQN/Double/Dueling DQN, REINFORCE, Actor-Critic, A2C, TRPO, PPO, DDPG, HER and SAC with PyTorch and Gymnasium.

2026 | Actumlogos | Agentic AI Course

AI fundamentals, agents and environments; architectures, rationality and utility functions; Chain of Thought, ReAct, Self-Refine and Self-Consistency; knowledge representation: logic, rules and ontologies; Bayesian networks, uncertainty and solution search; informed and local search: A*, heuristics and genetic algorithms; supervised, unsupervised and reinforcement learning; neural networks and deep learning: CNNs, RNNs and Transformers; LLMs, Transformer architecture and prompt engineering; fine-tuning, LoRA and instruction tuning; RAG and search over proprietary documents; Self-Refine, Test-Time Compute and hallucination control; multimodal image and audio agents; multi-agent systems: LangChain, CrewAI and Ollama; local, cloud and API deployment; Python, PyTorch, TensorFlow, Keras, Jupyter, Hugging Face and FastAPI; ethics, privacy and bias.

2026 | Actumlogos | Applied LLM Engineering Course

Natural language processing (NLP); information retrieval; introduction to Applied LLM Engineering; clinical data preprocessing and candidate filtering; clinical match search; scoring systems; introduction to trading bots; financial analysis; sentiment analysis in trading; deep learning for the stock market; LLMs for stock market bots; reinforcement learning for the stock market; trading bot deployment.

AWARDS

2020 – Massachusetts Institute of Technology (MIT) COVID-19 Challenge: Latin America vs. COVID-19 | Track A Winner

First place with a team that developed a solution to analyze immunity and COVID-19 reinfection risk; contributed mathematical functions, programming and web architecture in an English-language challenge involving 1,500 participants from 73 countries.

Gaceta UNAM: [University students win an international COVID-19 challenge](#)

Imagen Noticias: [Interview and video coverage of the winning project](#)

Milenio: [App developed to tackle COVID-19](#)

UNAM Global: [App developed to assess immunity or reinfection risk](#)

Uno TV: [UNAM student wins MIT COVID-19 challenge](#)

SinEmbargo: [Mexican students win against participants from 73 countries](#)

Julio Astillero: [Mexican students build an app and win MIT competition](#)

Noroeste: [Mexican students win MIT competition with a COVID-19 app](#)

LANGUAGES AND RELOCATION

Spanish: native | English: B2, professional working proficiency | International relocation: available; visa sponsorship required outside Mexico.