

# Alejandro Sánchez Yalí

## Artificial Intelligence Engineer & Data Scientist



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### SUMMARY

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Machine Learning Engineer and Data Scientist with 5+ years of experience building scalable AI/ML solutions and production-ready web applications. Strong mathematical foundation and hands-on expertise in Python, LLMs, and cloud infrastructure. Proven track record integrating large language models, deploying ML systems, and leading technical projects from research to production. Experienced in full-stack development, DevOps, and technical writing.

### TECHNICAL SKILLS

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- **ML/AI:** TensorFlow, PyTorch, LangChain, LangGraph, Whisper, LLMs, Scikit-learn, JAX, Flax
- **Languages:** Python (7+ años), TypeScript, JavaScript, SQL, Rust, C
- **Data Science:** Data Analysis, Statistical Modeling, Advanced Statistics, Visualization (Matplotlib, Seaborn, Pandas, NumPy)
- **Backend:** FastAPI, Django, Flask, RESTful APIs, GraphQL
- **Frontend:** React.js, Next.js, TypeScript
- **Cloud/MLOps:** AWS, GCP, Docker, GitHub Actions, CI/CD pipelines
- **Software Engineering:** Clean Architecture, SOLID principles, TDD, Unit/Integration Testing, Version Control (Git)
- **Mathematics:** Category Theory, Linear Algebra, Probability Theory, Statistical Inference

### EXPERIENCE

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#### Independent IT Consultant

Aug 2024 – Present

*Freelance*

*Remote*

- Delivered end-to-end AI/ML solutions for business clients using Python, FastAPI, Django, and React.js
- Developed and deployed AI agents, LLM-powered chatbots, and technical English learning platforms
- Integrated large language models and AI services into production web applications
- Implemented cloud deployments (AWS, Docker) and CI/CD pipelines

#### Full-stack Developer

Apr 2021 – Aug 2024

*Monadical*

*Remote Job - Canada/EEUU*

- Built and integrated AI services for information retrieval using large language models (OpenAI, LangChain, Whisper)
- Developed scalable backend systems for ML model deployment using Python (FastAPI, Django)
- Created frontend interfaces for AI applications using React, Next.js, and TypeScript
- Led technical projects from research to production, collaborating with multidisciplinary teams
- Managed cloud infrastructure and DevOps (AWS, Docker, CI/CD)

## Full-stack Developer

*BCFort*

Aug 2018 – Oct 2020

*Medellín, Colombia*

- Led development of blockchain and data analytics solutions with Python, React, and Web3.js
- Implemented data analytics and predictive models for blockchain transaction analysis
- Managed cloud infrastructure (AWS, GCP, IBM Cloud)

## Professor

*Universidad de Antioquia*

Jan 2010 – Oct 2021

*Medellín, Colombia*

- Taught advanced courses in Machine Learning, Data Science, and Mathematics using Python, NumPy, Pandas, TensorFlow, PyTorch, and Scikit-learn
- Mentored research and student projects in ML, data analysis, and software development
- Taught advanced mathematics courses and developed elective AI/ML curriculum for Mathematics Institute (1.5 years)

## FEATURED PROJECTS

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### • **Morpheus – AI Image Generation Platform** [↗](#)

- Full-stack open-source platform for AI image generation using Python, React, and stable diffusion models
- Implemented RESTful APIs, ML model integrations, and cloud infrastructure with Docker and AWS

### • **Zippy – Interactive AI Avatar** [↗](#)

- Built a Next.js-based talking avatar integrating OpenAI API and Azure Cognitive Services
- Developed TTS synthesis and seamless backend-frontend integration in Python and TypeScript

### • **Digital Human – Interactive AI Avatar (+ 320 Stars on Github)** [↗](#)

- Engineered a conversational AI system with OpenAI GPT, Whisper, and Eleven Labs
- Implemented real-time data processing and lip synchronization

## TECHNICAL BLOG POSTS

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### • **Zero-Shot Text Classification** (Sep 2024)

- Analysis of modern approaches to zero-shot learning in NLP

### • **Neural Networks as DAGs of Parameterized Computational Programs** (Aug 2024)

- In-depth exploration of neural networks from a differentiable programming perspective

## CONFERENCE TALKS

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### • **Scaling Learning Models: Parallelism Strategies in JAX with Flax - PyCon** (2024)

- Presented strategies for scaling machine learning models using JAX and Flax
- Discussed parallel computing techniques for efficient model training

## EDUCATION

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### Master in Mathematics

*Universidad de Antioquia*

Aug 2010 - Sep 2013

*Medellín, Colombia*

### B.Sc. in Teaching Mathematics and Physics

*Universidad de Antioquia*

Jan 2004 - Oct 2009

*Medellín, Colombia*