

# RODOLFO FERRO

COMPUTER VISION & MACHINE LEARNING ENGINEER

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## ABOUT ME

Computer Vision and Machine Learning Engineer with 7+ years of experience designing, training, and deploying CV/ML systems for production environments. Expertise in deep learning architectures (CNNs, object detection & tracking) integrated with LLMs for intelligent visual pipelines. Strong mathematical background and a track record of building end-to-end ML workflows – from data collection and annotation to model registry, orchestration, and monitoring. Passionate about image processing and data modeling for reliable tech solutions.

## EDUCATION

### 2024 - 2025 | STATISTICAL METHODS SPECIALIST

Centro de Investigación en Matemáticas (CIMAT), A.C.

### 2021 - 2023 | COMPUTER SYSTEMS ENGINEER

Universidad Virtual del Estado de Guanajuato (UVEG)

### 2011 - 2017 | BACHELOR IN MATHEMATICS

Universidad de Guanajuato (UG)

## SKILLS

### LANGUAGES

Python (advanced) • R • C/C++ • Solidity • LaTeX

### CV/DL

CNNs • Visual Transformers • Object Detection (YOLO, SSD) • DeepSort • Image Segmentation • Siamese Networks • UNet • LLM integration into CV pipelines

### LIBS/Frameworks

TensorFlow • Keras • PyTorch • OpenCV • FastAPI • Flask • NumPy • Pandas • Plotly • Streamlit • Airflow

### CLOUD/MLOPS

Google Cloud Platform (Vertex AI) • AWS SageMaker • Azure ML • Model registry • Airflow • Prefect

### TOOLS

Git • GitHub • JupyterLab • Docker • Marimo • Google Colab

## AWARDS & CERTIFICATIONS

- Google Developer Expert (GDE) – Machine Learning (2023)
- Microsoft Certified: Azure Fundamentals [AZ-900] (2021)
- Winner – #TFWorld TensorFlow 2.0 Challenge (2020)
- IBM Q Quantum Computing 101 Badge (2018)
- 1st Place – IBM Hackapalooza Bluehack Hackathon (2017)

## PROJECTS

### RESMONET – EMOTIONAL STATE DETECTION FROM VIDEO

Computer vision system detecting emotional states from video to improve the Electronic Patient Record. Published research: [dx.doi.org/10.2139/ssrn.4120087](https://dx.doi.org/10.2139/ssrn.4120087)

### PSYCHOPATHOLOGY ASSISTANT – TENSORFLOW 2.0 CHALLENGE WINNER

Intelligent assistant platform tracking psychopathology patient responses in face-to-face and remote sessions using deep learning and video analysis.

## EXPERIENCE

### **SR. MACHINE LEARNING / COMPUTER VISION ENGINEER | AIAEC LLC (OCT 2025 – PRESENT)**

- Design and develop computer vision systems that integrate Large Language Models (LLMs) for multimodal visual understanding and intelligent document/scene analysis.
- Build and evaluate deep learning models (CNNs, transformer-based architectures) for production-scale visual recognition tasks.
- Contribute to the ML lifecycle: data collection, annotation strategies, model training, evaluation, deployment, and production monitoring.
- Develop Python-based services and APIs (FastAPI) to expose CV/ML inference pipelines at scale.

### **SR. SOFTWARE ENGINEER – DATA & ML | BISONIC MÉXICO (2023 – 2025)**

- Built ML-based user classification tool using Python, Pandas, and scikit-learn for non-legitimate users detection on the platform.
- Built analytics dashboards for strategic decisions using Streamlit and Dash.
- Automated in-platform transaction processes with Python deployed on AWS.
- Developed analytics dashboards for strategic business decisions using Streamlit and Dash.
- Implemented and deployed smart contracts on Ronin, Ethereum, and Arbitrum for NFT token usage.

### **SR. MACHINE LEARNING ENGINEER | VINDOO.AI (2020 – 2022)**

- Designed and deployed computer vision models in Google Cloud Platform using Python, OpenCV, and TensorFlow.
- Implemented object detection models and DeepSort-based multi-object tracking for real-time video analysis.
- Managed model registry in GCP and built orchestration pipelines with Apache Airflow.
- Developed interactive statistical dashboards for business decision-making with Streamlit.

### **SR. MACHINE LEARNING CONSULTANT | HCT MÉXICO (2020 – 2022)**

- Co-designed ML product architecture integrating computer vision smart solutions with data pipelines.
- Developed and maintained ML system and real-time monitoring (Telegram Bot + Streamlit) using TensorFlow and Python.

### **AI DIGITAL SHERPA | MICROSOFT MÉXICO (2020 – 2021)**

- Managed 2,000+ community groups for Azure cloud certification processes.
- Built documentation and examples using Azure ML and Cognitive Services.

### **LEAD ML ENGINEER | OMDENA (2019)**

- Led image enhancement task and UNet-based model implementation for fire outburst prevention using satellite imagery (Python, OpenCV, TensorFlow).
- Selected as community builder due to exemplary performance in the tree identification AI challenge.

### **MACHINE LEARNING RESEARCH INTERN | HARVARD UNIVERSITY – DEPT. OF CHEMISTRY AND CHEMICAL BIOLOGY (2017)**

- Implemented ML models for molecular property inference using TensorFlow and Gaussian Processes.
- Developed a Python package applying GP models to molecular properties using GPflow.