

Angel Toledo Flores  
**Software Developer / IA Developer**

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## Professional Summary

- With over +5 years of experience in developing and researching Machine Learning solutions for specific problems in areas of Computer Vision (CV), Optical Character Recognition (OCR), Natural Language Processing (NLP), Assistant with Large Language Model (LLM) and Statistical Analysis, I have solid knowledge in key technologies and have worked with companies in the industry to implement effective and efficient solutions.

## Technical Skills

- Python Development
- Matlab for mathematics
- Basic Cloud with AWS
- Machine Learning and Deep Learning with TF, Keras, Pytorch
- Statistical Analysis
- LLM integrations (gpt, llama 2, deepseek).
- API Development

## Work Experience

### Software Developer Sr , SINGULAR Octubre 2023 - Present

- Built an AI assistant and RAG-based system for automatic detection, filtering, and email notification of government tenders in Guatemala. Combined web scraping, LLM evaluation, and Gmail automation to summarize and deliver only relevant opportunities to clients.
- Built AI assistants and autonomous agents with LLaMA 2, GPT-4, Mixtral, and DeepSeek for sales opportunity detection.
- Built a molecule recommendation engine using statistical models and business rules; leveraged LLMs to interpret client needs and translate them into actionable recommendations.
- Delivered a predictive LLM-based system for forecasting pharmaceutical shortages. Technologies: Python, LLMs, AWS, Azure, GCP, GPT-4, LLaMA 2, DeepSeek

**Skills:** Machine Learning, Python Developer, AWS, Azure, GCP, Gpt-4, Mixtral, Llama2, LLM, Gmail API, Docker.

### IA Automation Engineer, CEREBROTS June 2023 - October 2023

- Developed automated marketing campaigns using generative AI tools like ChatGPT, Sora, and Stable Diffusion. Integrated with TikTok Shop to create dynamic ad campaigns through Python.
- Analyzed campaign performance data for continuous optimization.
- Built an automated image editing and mockup generation system using Python, OpenCV, and computer vision techniques.

**Skills:** Python, GPT, Sora, Stable Diffusion, Computer Vision, TikTok API, AWS, Meta Business Suite.

### Teach Lead Machine Learning (Contractor), ADEA June 2023 - October 2023

- Led the development of a secure document classification system using deep learning and OMR for identity document processing.
- Designed and deployed OCR pipelines with NLP-based categorization, improving productivity.
- Supervised a team of 3 engineers and ensured compliance with data protection standards.
- Achieved 85% classification accuracy (vs. 65% baseline) and reduced processing time by 90%. Technologies: OCR, OMR, NLP, Python, Deep Learning, API.

**Skills:** Machine Learning, Python Developer, Computer Vision, OCR, OMR, Deep Learning, Lead.

## **Teacher Data Science, UTEL - UCAMP.** January 2023 - July 2023

- Delivered comprehensive instruction on data science, covering data analysis, visualization, and machine learning workflows. Mentored students in building impactful portfolio projects aligned with industry standards.

## **Professor Computer Vision,Space Foundation.** June 2023 - July 2023

- Delivered foundational training on CV concepts applied to the space industry, including the development of a crater detection system for autonomous planetary rovers.

## **Machine Learning Engineer, Emergys.** January 2022 - June 2023

- Developed software using Optical Character Recognition (OCR) and Natural Language Processing (NLP) for document review and validation.
- Leading a software development team creating the workflow, establishing standardization of practices and creating the software architecture. (sizing of technologies, time estimation, technical resources, architecture and personnel of new machine learning projects.)

**Skills:** Machine Learning, Python Developer, OCR, NLP, Leading, Testing, MLOps, Computer Vision.

## **Computer Vision Engineer, Lingodub.** January 2021 - January 2022, Covent Garden, London.

- Developed and evaluated multiple object detection, classification and segmentation models for market research in the construction industry using YOLO, detectron2, Faster in Python and AWS.
- Creation of API using postman for machine learning model deployment
- Analysis, cleaning, and labeling of data for machine learning model training.

**Skills:** Computer Vision, Machine Learning, Deep Learning, Object Detection, Classification, Segmentation, Python, AWS, Labellmg, Jupyter Notebook, Anaconda, Postman, Keras, Tensorflow, Pythorch.

## **Machine Learning Researcher, Center for Automation and Robotics (UPM-CSIC).** February 2020 - December 2021, Madrid, Spain.

- Led research on machine vision for precision agriculture, including automatic weed classification, spatial crop analysis, and ISOBUS-integrated smart spraying systems. Achieved over 90% classification accuracy using RetinaNet and deep learning models (Keras, TensorFlow).
- Integrated robotic control via ROS and authored peer-reviewed scientific work.
- Worked with Robotic Operating Systems (ROS) for teleoperation of autonomous vehicles using ROS, Matlab.
- Writing of scientific articles and creation of posters for scientific congresses.

**Skills:** Computer Vision, Machine Learning, Deep Learning, Object Detection, Classification, Segmentation, Python, AWS, Labellmg, Jupyter Notebook, Anaconda, ROS, Keras, Tensorflow, Pythorch.

## **Science Contributions**

- MULTI-CLASS WEED DETECTION AND CLASSIFICATION SYSTEM FOR TOMATO (*Solanum lycopersicum L.*) USING NEURAL NETWORKS. Angel TOLEDO, Juan LÓPEZ CORREA, Dionisio ANDÚJAR. CLAP 2022.
- USING COMPUTER VISION AND RGB IMAGES TO QUANTIFY PLANT SPATIAL DISTRIBUTION IN CORN. Villa S, Toledo Angel, Lopez-Correa, Peralta-Cuquejo R, Balboa, G. CLAP 2022.
- OBJECT DETECTION-BASED NEURAL NETWORKS FOR WEED MANAGEMENT . Juan Manuel López Correa, Angel Toledo Flores, Orly Enrique Apolo, Dionisio Andujar. CLAP 2022.
- INTELLIGENT WEED TREATMENT BY ISOBUS BASED ON AUTOMATIC RECOGNITION IN TOMATO CULTIVATION. Juan López-Correa, Angel Toledo, Dionisio Andújar. SHIBIH 2022.

## **Education**

- **Master's degree in Computational Science and Applied Mathematics.** International University of la Rioja 2023- 2026.
- **Diploma in Digital Project Management.** City University, Miami, USA. (In progress) 2025–2026.
- **Computer System Engineering.** Virtual University of the State of Guanajuato (UVEG) Mexico (In progress) 2020 - 2025.
- **Agricultural Mechanical Engineer.** Chapingo Autonomous University (UACH) Mexico. Degree (Graduated by academic merit ) 2017-2021.