

Felipe Gonzalez Roldan

Mechatronic Engineer - Software Developer - AI Enthusiast

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🌐 [Academic Github](#) | 🌐 [Personal Github](#) | [LinkedIn](#) | 🌐 [Personal site](#)

Mechatronics Engineer with a Master's in Industrial Automation and 8+ years of experience in IT projects, innovation, and teaching. Proven skills in software development, AI, robotics, education. Dedicated to continuous improvement and persistent effort.

Skills

AI/ML: LangChain & Langgraph, OpenAI API's: LLMs and GenAI integration - ChromaDB: vector database for AI applications - Looker Studio: data visualization and reporting.

Cloud & tools: AWS - GCP - Docker - GitHub - Postman.

Frameworks & Libraries: FastAPI: API RESTful, microservices - Streamlit: application interfaces - Selenium: RPA's and scraping.

Programming: Python: data analysis, automation, backend, AI development - Golang: backend development - MATLAB: robotics simulation and numerical computing - SQL: database management.

Work Experience

SSr. Python Developer

Globant, Bogotá - Colombia

Sep 2025

- Software Engineer for Verily Life Sciences.
- **Technical Skills:** Python, Golang, GCP, Integration tests, Unit testing, gRPC, FHIR, GitHub actions.

Research and Development Specialist

Seguros Bolívar, Bogotá - Colombia

Jul 2022 - May 2025

- Led 8+ projects for the research and knowledge team implementing innovation methodologies.
- Python microservice for image risk analysis 5000 quotations/year, a RAG pipeline for document analysis and data extraction +500 documents/year, a research agent for news processing (+1000 publications/month) to provide market insights.
- Automation bots in Selenium handling +2000 web queries/month, improving response times of the Bolívar's assistance team by 400%.
- Created Google Appscript automations for alert systems and document generation, optimizing risk engineering workflows.
- **Technical Skills:** Python, FastAPI, LangChain, LangSmith, Langgraph, Docker, Flask, Selenium, Apps Script, Streamlit, Postgres, ChromaDB, OpenAI, Vertex AI, Looker Studio, GitHub.

University Lecturer

Universidad Nacional, Universidad Militar, Universidad ECCI, UPTC - Colombia

Aug 2017 - Aug 2025

- Lecturer in Computer Programming and Object-Oriented Programming at National University of Colombia.
- University lecturer in courses on Robotics, Industrial Robotics, Servomechanisms, Robotic Platforms, Sensors, Actuators, Programming Electives, and Automation Fundamentals.
- **Technical Skills:** Python, C, MATLAB, ROS, Bash, $\LaTeX$, Simulink, ABB Robot Studio, GitHub, URSim, Festo FLuidSim, Proteus.

Research and Development Engineer

Colsein, Tocancipá, Colombia

Nov 2014 - Jul 2017

- Designed and implemented technological and industrial innovation projects using TRIZ methodology.
- Co-designed, built, and commissioned a 3D scanner for fuel tank calibration in less than 18 months, resulting in the calibration of 8 tanks with 3D rebuild model within mm resolution.
- Co-developed software to process point cloud data and generate gauging tables.
- **Technical Skills:** Python, C, MATLAB, Excel, .NET, Solidworks, Geomagic Design, Autodesk Recap.

Education

Universidad Nacional de Colombia

Aug 2016 - Jun 2019

Master's in Industrial Automation

Grade: 4.5/5.0

Relevant Courses: Industrial Robotics, Mobile Robotics, Optimization Techniques, Stochastic Processes, Control Theory.

Thesis: Generación *offline* de trayectorias libres de colisiones para manipuladores industriales.

Universidad Nacional de Colombia

Feb 2008 - Jan 2014

Bachelor's in Mechatronics Engineering

Grade: 4.4/5.0

Relevant Courses: Computer Programming, Object-Oriented Programming, Data Structures, Artificial Intelligence Techniques, Process Automation, Robotics.

Thesis: Diseño de un mecanismo de ejes complejos: Robot paralelo tipo delta.

Certifications

- **Introduction to Data Science in Python** - Coursera - June 2020.
- **Machine Learning** - Coursera - July 2021.
- **Introduction to Vertex AI Studio** - Google - July 2024.
- **AWS Educate Introduction to Cloud 101** - AWS Educate - March 2025.
- **Google Cloud Computing Foundations Certificate** - Google - June 2025.
- **Cloud Digital Leader Certification** - Google - September 2025.

Projects and Publications

- **RAG with reranking (2024):** Question Answer system with context-aware responses from documents in a Retrieval-Augmented Generation pipeline using LangChain, ChromaDB, and FastAPI.
- **Machine Vision Grasping Algorithm (2022):** Use of a Generative Grasping CNN (GGCNN) to generate valid grasping poses for an industrial robot.
- **Librería de Aprendizaje Reforzado para Robots Industriales (2021):** Co-developed a Reinforcement Learning (RL) library for generating movements for industrial robots.
- **Optimización de trayectorias con PSO (2018):** Implemented the Particle Swarm Optimization algorithm in MATLAB to create collision-free trajectories for the ABB IRB 140 industrial robot.
- **Publications:** FRobots_RL: A Flexible Robotics Reinforcement Learning Library, Benchmark of Sampling Based Motion Planners in Bin Picking Manipulation Task, Collaborative Pick and Place using industrial robots, simulation and deployment.

Languages

- Spanish: Native
- English: TOEFL iBT - **Score:** 105/120

Interests & Hobbies

- Technology, computing, digital business, education, soccer, reading, videos/podcasts.