Juan David Rivaldo Díaz Sierra

Electronic Engineer | AI, Computer Vision and Machine Learning

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PROFESSIONAL SUMMARY

Electronic engineer with a strong passion for programming, artificial intelligence, computer vision, and machine learning. I thrive in dynamic environments, bringing adaptability, leadership, and a collaborative mindset. I'm constantly seeking to grow, learn, and apply my skills to develop innovative and impactful solutions.

EXPERIENCE

Engineer in Training   **December 2024 – Currently**
Supervisa S.A.S. Ibagué, Tolima
- Participation in the development of solutions based on artificial intelligence and computer vision applied to electronic security systems and process automation.
- Implementation of algorithms for the detection and prevention of fraud in weighing systems by automation of electronic scale.
- Development of detailed technical documentation of the projects developed, including functional schemes, hardware and software configurations, and data flows.
- Technical support specialized in internal projects, with diagnosis, configuration and validation of electronic equipment and specific hardware integration for functional tests.

Basic-Intermediate Electronic Tutor   **August 2024 – November 2024**
Institución Educativa Técnica Lepanto. Murillo, Tolima
- Tutoring of more than 80 students on introductory and advanced issues of electronic engineering.
- Design and implementation of educational projects that encourage interactive learning.
- 3D printers optimization, improving its print quality at 20%.

Electronic Engineer   **January 2024 – June 2024**
Assets. Ibagué, Tolima
- Electronic circuit design and prototype development for various projects.
- Maintenance, repair and calibration of electronic equipment, ensuring its correct operation.
- Project management and documentation from planning to execution, with leadership of technical teams, coordinating tasks and guaranteeing the fulfillment of established deadlines and objectives.

Research Assistant   **August 2023 - January 2025**
Universidad de Ibagué. Ibagué, Tolima
- Research and documentation on advances in robotics and automation to support projects of the IMACUNA research group.

- Design and construction of robotic prototypes, including a SCARA robot for pick-and-place applications.
- Collaboration in technology initiatives within the D+TEC group, contributing to the development and validation of innovative solutions.

Tutor in Communications and Signals   **August 2023 - November 2023**
Universidad de Ibagué. Ibagué, Tolima
- Provide complementary classes and academic advice to students of electronic engineering in issues related to spectral signal analysis, AM and FM modulation, and digital communications. Focused on strengthening the theoretical and practical understanding of communication systems.

Analog Electronics Tutor   **August 2022 - May 2023**
Universidad de Ibagué. Ibagué, Tolima
- Accompaniment and academic support for electronic engineering students in subjects related to operational amplifiers, feedback amplifiers and design of regulated sources DC. I promoted practical learning and circuit analysis in real applications.

SKILLS

Technical skills:

- **Programming languages:** Python, Java, C++.
- **Frameworks:** TensorFlow, FastAPI, YOLO, Scikit-Learn, Flet, OpenCV, MediaPipe.
- **Databases:** MySQL, SQLite, MongoDB.
- **Version Control:** Git, GitHub, Bitbucket.
- **Tools:** Visual Studio Code, Postman.
- **Design and Analysis Tools:** MATLAB, Proteus, Eagle PCB Design Software, Arduino, SolidWorks.
- **Electrical Testing Instruments:** Oscilloscopes, Function Generators, Digital Multimeters, Spectrum Analyzers, Power Supplies.
- **Others:** Welding, 3D Printer, CAD, Circuit Analysis, Report Writing, Scrum, Office Tools.

Soft skills: Project Management, Organization, Leadership, Effective Communication, Teamwork, Problem Solution, Rapid Learning and Continuous Adaptation, Logical Reasoning.

EDUCATION

Bachelor of Engineering - Electronic Engineering   **2020 – 2025**
Universidad de Ibagué. Ibagué, Tolima

- Thesis on characterization, design, prototyping, and validation of a SCARA serial robot for pick-and-place applications.
- GPA: 4.33/5.00

FEATURED PROJECTS

WorkAware   **2025**

Multiplatform desktop application developed in Python with FLET, oriented to task management and posture monitoring. It incorporates notifications, sound alerts, modern and responsive interface, and data persistence with SQLite and SQLAlchemy.

Serial robot type Scara for Pick-And-Place   **2024**

The project focused on the characterization, design, prototyping and validation of a Scara serial robot (selective compliant Assembly Robot Arm) for Pick-And-Place applications. This prototype has a microcontroller based control system (Arduino) and a graphic interface. The results of the degree work were presented in a presentation during the University Research Week (SIU, 2024). [See document](#)

Game Body   **2022**

The developed system uses the Python programming language together with the Mediapipe and OpenCV libraries to detect and process the movements of the body and hand, turning them into keyboard commands. This allows the user to control classic video games, such as Super Mario Bros, Street Fighter, Megaman and others, through body gestures.

CERTIFICATIONS

PCB Development & Design   **2023**

Servicio Nacional de Aprendizaje - SENA

IoT Solutions Design   **2023**

Servicio Nacional de Aprendizaje - SENA

LANGUAGES

Spanish (Native)   English (Básic - Intermediate)