

Eduardo de Jesús Dávila Meza, Ph.D.

AI/ML · Computer Vision · Embedded Systems · ROS Engineer · Researcher · Educator

Man (male)

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Professional portfolio

Federal professional certificates Bachelor's: 12027207 Master's: 14043743

X Technical Skills

🗱 Linux (Ubuntu), Windows

Python, C++, SQL, MATLAB, MPLAB, Arduino

😉 👨 OpenCV, TensorFlow, ROS & ROS 2

JSON, Keras, Matplotlib, NumPy, Pandas, PIL, Scikit-learn, Tkinter

VS Code, Jupyter Notebook, Git, GitHub

SOLIDWORKS, PROTEUS, LabVIEW

LETEX, Markdown, MS Office, Dia (diagrams)

Other Skills

Self-taught

Communication

Goal-oriented

Positive attitude Responsible

Proactive Teamwork

Customer support

A Z Languages

Spanish | Native: full professional proficiency.

English | B2 (Advanced): fluent in reading, writing, and technical comprehension; intermediate spoken; proficient for research publications, documentation, and international collaboration. Certified by Cinvestav, Guadalajara Campus, Feb. 2023.

Work Experience & Projects

2025 Apr. - Jul. 2024

Mar. - Jun. | ★ Robot Programming Professor Tecnológico de Monterrey, Gdl. Led courses on ROS (Robot Operating System) and ROS 2 for students in Robotics and Intelligent Systems Engineering, focusing on software development for differential drive robots. Recognized as a top-rated professor (See recognition 2). See repository 2

T++ · Python · ROS · Technical instruction · Computer vision · Code debugging

May 2021

★ AI/ML Engineer

© Recognition of Fundus Pathologies
Collaborated with German eye hospitals to develope a Mask R-CNN

The data pathologies in medical images model aimed at identifying fundus pathologies in medical images, managing the complete AI/ML process, from data preprocessing Jul. 2024 and augmentation to model training and validation.

Mask R-CNN · TensorFlow · Keras · Data augmentation · Data visualization

Dec. 2019 ★ Computer Vision & ROS Developer Built ROS nodes for real-time recognition of colors, objects, signs,

banknotes, and text, integrating them into a modular navigation Oct. 2023 system to assist users with visual impairments.

ROS · OpenCV · TensorFlow · C++ · Python · OCR

Sep. - Dec. **Graduate Teaching Assistant** ♥ Cinvestav, Guadalajara Supported a course in AI and Computer Vision, assisting master's 2022 and PhD students, guiding them in developing neural network models for visual recognition tasks.

Python · TensorFlow · OpenCV · MATLAB · Problem solving · Code debugging

Jul. 2016

Lead Embedded Developer a CUValles Tech Dev Club Led technology projects and developed patent-pending embedded systems focused on automation and sustainability, guiding to student teams on prototyping and sensor integration for automation applications.

The Embedded Systems · Signal Processing · Leadership · Prototyping · Patents

Aug. - Dec. 2016

May 2017

PIC Workshop Advisor ♥ University of Guadalajara Conducted workshops on basic and advanced PIC microcontroller programming in C (XC8), guiding students in circuit prototyping and debugging in both real and simulated environments.

Research Contributions

Jun. 2024 **Meeting Abstract**

"Deep-learning based quantification of RPE65-mutation inherited retinal degeneration", presented at Investigative Ophthalmology & Visual Science, vol. 65(7), 1392, **1** ID: 2794864 ¹ ID: 27948 ¹ I

♥ Mask R-CNN · Image analysis · ML lifecycle · Feature extraction · Research

Sep. 2023

"Quaternion and Split Quaternion Neural Networks for Low-Light Color Image Enhancement", in IEEE Access, vol. 11, 108257-108280. 6 10.1109/ACCESS.2023.3312234 .

AI/ANNs · Image color analysis · Quaternion algebras · Color spaces · EKF

2017

May 2024

Dec. 2016

Patent "Device for controlling underactuated two-link systems with one actuator", application no. MX/a/2017/016436, filed under the University of Guadalajara's Invention Support Program.

The Embedded systems · Control theory · PICs · SPI · Power and digital electronics

Academic Degrees

Sep. 2019 **PhD** in Electrical Engineering

Cinvestav, Guadalajara Thesis | Deep learning for recognition and quantification of fundus pathologies using instance segmentation, and quaternion neural

networks for low-light image enhancement. SciComm · Research · Mask R-CNN · Medical image analysis · AI/ML lifecycle

Sep. 2017 **MSc in Electrical Engineering**

Ocinvestav, Guadalajara Thesis | Quaternion neural networks for low-light image enhancement, and identification of an electromechanical system.

Aug. 2019 SciComm · Research · Robotics · AI/ANNs · Control theory

Aug. 2012 **BEng in Mechatronics Engineering**

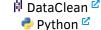
♥ University of Guadalajara Social service & Professional Intership | Assistance and development of electronic and mechatronic projects in the electronics and telecommunications laboratory.

Tembedded systems · Programming · Digital electronics · HMI · Control theory

Certifications



MI AI/ML □ 🕴 Pandas 🛂







Scikit-learn



