Carlos Alexander Osorio Quero

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About Me

Ph.D. in Electronics Engineering from INAOE, Mexico (2022), specializing in 2D/3D hyperspectral imaging with single-pixel cameras. Expertise in FPGA applications, RF design, electric vehicles, and space technology. Proficient in programming, EDA, and CAD/CAM/CAE tools, with a strong focus on developing advanced sensing and signal processing solutions for aerospace, automotive, and computational imaging applications.

Languages

Spanish	● ● ● ● ●
English	● ● ●

Skills

Electronic Design	● ● ● ● ●
Space Technology	● ●
PCB/Signal Integrity	● ● ● ●
MATLAB,Python	● ● ● ●
CUDA, C/C++	● ● ● ●
FPGA,GPU,DL/ML	● ● ●
Image Processing	● ● ●
ANSYS/Solidworks	● ● ● ●

Work experience

2024-Present — **Postdoctoral Research | Computer Science** — INAOE-Mexico
Intelligent rescue system based on DL for UAVS.

2018-2022 — **Research | Ph.D. student** — INAOE-Mexico
Development of hyperspectral vision system FPGA/GPU.

2017 — **RF Design Engineer** — INAOE-Mexico
Development of embedded systems FPGA/DSP for communication and astrophysics.

2005-2015 — **Research Assistant** — Simon Bolivar University-Venezuela.
Nuclear Physics group, design electronic, energy renewable , electric Car, communication and astrophysics.

2012 — **Research and Development Engineer** — INFN - Laboratori Nazionali di Legnaro-Italy.
Control systems design for stage a particle filter for a particle accelerator Wein fourth-generation SPES project.

Education

2025 — **University Diploma in Introduction to the Space Industry and Systems** — Fiuba-Argentina.
CONAE/INVAP/FIUBA

2024 — **University Diploma in Applied Geomatics** — CONAE/UNC-Argentina.
Remote Sensing and Spatial Data Analysis (SDA).

2018-2022 — **Electronic Engineering,Ph.D** — INAOE-Mexico.
Doctorade's thesis: "Three-dimensional hyperspetral camera based on near-infrared single-pixel imaging".

2015-2017 — **Space Science and Technology,M.Sc.** — INAOE-Mexico.
Master's thesis: "Design and generation of a system detection of signal for applications in MINI-RADAR SAR (Synthetic Aperture RADAR)".

2012-2015 — **Electronic Master.** — Simon Bolivar University-Venezuela.
Master's thesis: "Design and implementation of an electronic system charging LIPO Batteries for a hybrid vehicle".

2015 — **Diploma of Higher Education in Mobile Communications.** — UPEL-IPMJMSM-Venezuela.
Diploma's thesis: "State-of-Art antenna using in the spacecrafts".

2003-2009 — **Electronic Engineer** — Simon Bolivar University-Venezuela.
Bachelor's thesis:"Acquisition card design for a solar-powered vehicle with Labview MMI interface".

1999-2003 — **Diploma of Higher Education Electronics.** — I.U.T. Dr.Federico Rivero Palacios-Venezuela.
Diploma's thesis:"Designed an electricity consumption of virtual monitoring system based on DSP".

Certifications

OpenCV, Computer Vision,Python, C/C++,Parallel Computing (GPU/CUDA),FPGA,NLP/LLM,Multi-Sensor Fusion,Deep Learning (DL),Self-Driving Car Engineering,Ansys,Antennas & RF Systems,Optical Remote Sensing Space Technology,Hyperspectral& Thermal Imaging,Reliability in Space Devices & Systems,Radar Image Interferometry & Image Processing.

Publications and Patents

Journals	AIP Publishing, IEEE,OSA, MDPI,Elsevier, Springer	(18)
Proceeding	SPIE,OSA, ASME, IEEE	(24)
Chapter Book	Taylor & Francis,CRC Press	(1)
Patents	3D-NIR enlarged creation image system and method,MX/a/2022/016091, Hybrid 3D imaging system,MX/a/2020/012197	(2)