

Narek Stepanyan

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Education

MSc. in Electronic Engineering

University of Alcalá. [Transcript](#)

Madrid, Spain

Sept. 2019 to Sept. 2022

BSc. in Mechanical Engineering

University of León. [Transcript](#)

Leon, Spain

Sept. 2012 to Dec. 2018

Professional Experience

INDRA. Defence and Space Department, Antenna and RF Engineer

Madrid, Spain

June 2024 to Currently

- Antenna (e.g., horn, spiral, MPAs, and biconical) design, analysis, and optimization using Computational Electromagnetics (CEM) software such as CST Studio Suite and HFSS.
- Assessment, through CEM simulations and analytical models, of the impact of surrounding elements (e.g., radomes and housing) on antenna performance.

INTA (Spanish Aerospace National Technological Institute)

Madrid, Spain

Space Optics Department, Fellowship

May 2021 to Oct. 2022

- Completed MSc [thesis](#) on the effects on polarization due to the use of stabilizing or beam-steering mirrors.
- Modelling the polarization variation, using MATLAB, in the Polarimetric and Helioseismic Imager of the Solar Orbiter Mission (SO/PHI) and in Quantum Key Distribution (QKD) systems.
- Measurement of the coating properties of the fast steering mirror (FSM) used in SOPHI using spectroscopic ellipsometry.

INTA (Spanish Aerospace National Technological Institute)

Madrid, Spain

Electromagnetic Compatibility Area, Fellowship

Oct. 2019 to May 2021

- Software development and migration from VB6 to the .NET framework for controlling EMC-testing instrumentation through the GPIB and Ethernet protocols.
- EMC testing in reverberation and anechoic chambers in compliance with standards (e.g., MIL-STD-461 and ECSS-E-ST-20), using equipment such as signal generators and fiber-optic E-field probes.
- Implementation of techniques (e.g., spread spectrum, shielding, and decoupling) to meet EMC standards.

ESA-EAC (European Space Agency's Astronaut Center)

Cologne, Germany

Spaceship EAC Team, Intern

Oct. 2020 to March 2021

- Design and development of hardware (e.g., solid-state amplifiers, antennas, and loaded waveguides) for ISRU (in-situ resource utilization) activities on the Moon.
- Measurement of the grain size of lunar regolith simulants using a confocal microscope.
- Proposed and initiated the collaboration between INTA's RF Section and ESA-EAC to perform complex permittivity and permeability measurements of lunar regolith simulants.

Publications

Electromagnetic Characterization of Lunar Regolith Simulants

April 2022

Software and Programming Skills

Software: CST Studio Suite, Matlab, Visual Studio, SolidWorks, Altium, Autodesk Inventor.

Programming Languages: C, Python, Matlab, C#, Visual Basic, Visual Basic .NET.

Extracurricular Activities During The Bachelor's Degree

University of Leon Formula Student Team, Team member

Leon, Spain
Aug. 2018 to Sept. 2019

- Car's chassis and body design using CAD, CAE and CFD software.
- Composite manufacturing by means of vacuum impregnation process.

Mechanical Car Workshop, Apprentice

Leon, Spain
Sept. 2018 to Sept. 2019

- Hands-on experience using a wide variety of tools.
- Detection, repair, and replacement of damaged components and mechanisms in cars.

Non-Engineering works, Waiter and Lifeguard

León, Spain
Agu. 2017 to Sept. 2018

- Although these are non-STEM related work experiences, they helped me to improve my inter-personal and intra-personal intelligence, as well as communication skills.

Projects By Personal Initiative

Python Programming

Aug. 2018

- Developing an [application](#) that studies the benefits of the electrical power factor improvement.
- Learning Python, Object Oriented Programming (OOP) and Aspect Oriented Programming (AOP).

Electromagnetic accelerator prototype as CERN internship applicant

May 2018

- Designing, developing, testing and manufacturing the prototype, [video](#).
- Used components and instruments e.g., PCBs, transistors, photoelectric sensors, Oscilloscope.

Student Exchanges

Erasmus+ Exchange

Split, Croatia
Aug. 2018

Training course for youth entrepreneurship and career development.

University of La Laguna

The Canary Islands, Spain
Feb. 2017 to Sept. 2017

Mechanical modelling of structural elements. Programming a simple [FEM application](#).

Volunteering

Teaching at Spanish Red Cross

Leon, Spain
Sept. 2018 to June 2019

Academic teaching and support to children. Rivers clean-up.

European Students' Forum AEGEE

Leon/Brussels, Spain/Belgium
Sept. 2018 to June 2019

Board member as Erasmus + responsible in AEGEE-Leon.

Organic farm

The Canary Islands, Spain
Summer 2017

Design and construction using several materials and tools.

Languages

Spanish: Native.

Armenian: Native.

English: B2 (Cambridge First Certificate).

Courses and Certificates

CMAS 2 star diver: 18 Dives, including one night dive.

Lifeguard certificate: 120 Hours.

Flight simulators: 150 Hours.

References and certificates available upon Request.