

Jesús Romero Sánchez

Aerospace Engineer

✉ jesus.romero@upc.edu

🌐 es.linkedin.com/in/jesusromerosanchez

📅 Date of birth: 21/05/1981

Education

- Sep/13 – Present **Master's degree in Aerospace Science and Technology (MAST)**, *Universitat Politècnica de Catalunya (UPC) – EETAC*, Castelldefels, Spain.
Subjects: Aerospace Materials, Analog and Digital Signal Processing in Aerospace Applications, Broadening of Fundamentals in Aerospace Science and Technology, Composite Materials for Aerospace Applications, Modern Control Systems, Numerical Methods for Systems of Aerospace Engineering, Radionavigation, Space Systems Engineering, Unmanned Aerial Vehicles.
- Sep/09 – Nov/13 **Five-year bachelor's degree in Aerospace Engineering**, *Universitat Politècnica de Catalunya (UPC) – ETSEIAT*, Terrassa, Spain.
- Sep/05 – Jan/09 **Three-year bachelor's degree in Aerospace Engineering**, *Universitat Politècnica de Catalunya (UPC) – EETAC*, Castelldefels, Spain.
- Sep/01 – Jun/04 **Technical Maintenance of Self-propelled Vehicles, specializing in Aeronautical Maintenance**, *IES Illa dels Banyols*, El Prat, Spain.

Work experience

- Apr/15 – Present **Aerospace Researcher**, *gAGE research group at Universitat Politècnica de Catalunya (UPC)*, Barcelona.
- Jan/12 – Mar/15 **Aerospace Researcher**, *ASCAMM Foundation (Technology Centre)*, Barcelona.
- May/09 – Jan/12 **Aerospace Researcher**, *CTAE (Aerospace Research and Technology Centre)*, Barcelona.

Work projects

- VISITT Technical head in charge of implementing a software for global navigation satellite systems (GNSS) precise positioning, the type precise point positioning (PPP). My implementation downloads ultra-rapid ephemeris and clock corrections from Internet and applies them in real time. The code is written in C++ under ROS architecture.
- Dec/14 – Present
(National)
- ICARUS My activities in this project, as technical developer, are focused on several tasks, the most important are listed below:
- Jan/14 – Present
(FP7)
- ◇ Adapting and mounting the necessary systems (communications, sensors, control and computer) for the operation of an aerial unmanned system (UAS).
 - ◇ Development of a driver for a thermal camera.
 - ◇ Development of a software (C++) for victim detection, which uses support vector machines (SVM) classifiers and it is based on the thermal images grabbed by the camera.
 - ◇ Development of a software (C++) for map stitching, where my implementation includes among others: conversion from 2D image plane to 2D World plane to 3D body plane conversions with aim to georeference the orthomaps and a Laplacian-Gaussian-Pyramid filter to blend the images taken by the UAS.
 - ◇ Development of a software (C++) for classify the orthomaps into forest, road, water, etc. My implementation is based on SVM.
 - ◇ Analysis and mitigation of electromagnetic interferences introduced in the GNSS receiver, and generated by the electric engines of the UAS.

FASTOP Oct/13 – Jan/14 (CLEAN SKY)	Technical responsible of translating from Matlab to C++ a complete software that consist on a fast optimiser for continuous descent approach (CDA) minimizing the use of aircraft engine thrust and speed brakes. Moreover, I extended its capabilities by adding the numerical method called Runge-Kutta-Fehlberg.
Sigma Feb/13 – Nov/13 (EC)	Technical responsible of testing and validating the Galileo minimum operational performance standards (MOPS).
DockingAssist Nov/12 – Nov/13 (FP7)	Technical head in charge of selecting, mounting, configuring, testing and validating the hardware necessary to provide precise position, velocity, time and heading of a vessels, using the type real time kinematics (RTK). The novelty of the project came by the fact of sending the RTK corrections through the data transmission technology called worldwide interoperability for microwave access (WiMAX).
SiS Monitoring Jul/10 – May/12 (National)	Technical responsible of designing and implementing a signal in space (SiS) monitoring system. The system offers GPS, GLONASS and Galileo signal monitoring in real time, via Internet, with high resolution sampled signal in space to better understand the events. I implemented the website in HTML and CSS.
GNSSmeter Sep/10 – Dec/10 (FP7)	Technical responsible of testing and validating an on board unit (OBU) for an integrity application tolling. GNSSmeter enhances the existing road tolling with the metering calculation technology based on GNSS.
HereNow Apr/10 – Sep/10 (FP7)	Technical responsible of carrying out a GPS plus WiFi and GSM data collection campaign to create a database of GPS, WiFi and GSM coverage in Barcelona. Moreover, I analyzed and evaluated the data collected in terms of hybridization, to enhance the positioning accuracy by developing new algorithms.
MultiNAV Oct/09 – Apr/10 (Internal)	Technical responsible of developing a multiple GNSS positioning with graphic user interface (GUI) in Matlab language. The position can be calculated from single or multiple constellation. The software computes the user position, velocity and time (PVT) from RINEX files of any version in range between 2.1 and 3.02 (current).
AVANT May/09 – Oct/09 (National)	Technical responsible of designing and implementing a GNSS software simulator. The software is an upgrade of the Matlab SatNav toolbox 3.0 from GPSoft to enhance its performance within an aeronautical scenario. The software generates several RINEX files scenario from user specified requirements.

Publications

Mar/13 A Novel Vessel Navigation System Design Based on WiMAX and DGNSS.

Languages

Spanish Mother tongue.
Catalan Mother tongue.
English B2.
Italian A2.

Computer skills

OS	Gnu/Linux (Ubuntu), MS-DOS and Windows (98, XP, 7 and 8).	Web Design	HTML, XML, CSS and PHP.
Applications	Office (Word, PowerPoint, Excel, and Visio) and OpenOffice.	Structured Programming	C/C++, Fortran, LabVIEW, Python and Visual Basic.
Utilities	Autocad, Doxygen, GIMP, Kile, Kate, Sublime and Subversion.	Scientific Programming	Matlab and Octave.
Layout	L ^A T _E X.	Scripting	Bash Scripting and C-Shell.

Qualities

- Personal skills Good software engineering skills, strong analytical, problem-solving and communication skills, ability to quickly enrol new situations and environments, eager to learn and develop new skills.
- Experience with High level programming languages, GNSS space and ground segment, RINEX, NMEA, SBAS, GNSS Testbench, Septentrio PolaRx3G, Spirent GSS7800, Leica GPS1200, Trimble BX982, Precise Point Positioning, NovAtel OEM 615, NovAtel OemStar, DGPS, RTK, ROS.
- Driving licenses A and B.