

**Training title:** *High-performance satellite image viewer*

**Field:** Operations and R&D

**Speciality:** Software development

### Subject

Image performance is the key components of the acquisition chain for observation missions and planetary exploration missions. Needs in processing are of various types: restoration, registration, image fusion, tracking, navigation, image simulation...

For using or testing/validating those processings, image viewers are required in order to display/compare images in details and allow interactions with humans.

New technologies have appeared in image viewing which allow high performance (timeliness in managing big images, high functional contents), and improved ergonomics (plug-ins).



The training period will consist in

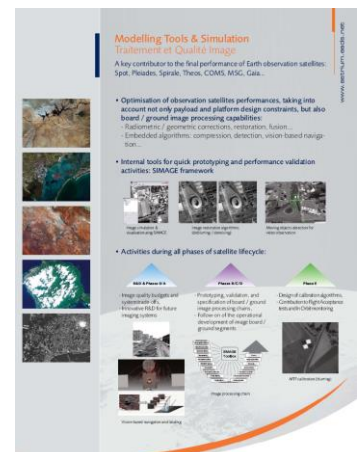
- studying the new image viewing technologies (bokeh, datashader, rasterio...), comparing them to existing internal solutions, or external (OpenEV, Monteverdi2, Geospy...)
- gathering all requirements of image team, for their different products requiring image display and interactions, existing or foreseen.
- defining a design, with an open architecture in order to adapt easily to the different applications, with high performance level, and good ergonomics for control, working both in linux and windows worlds.
- Developing / testing / validating this High-performance image viewer based on the latest technologies available, using existing COTS and/or own developed code.
- Producing the documentation (+ wiki) for user and maintenance,
- Connecting the viewer to the different users applications, and further customisation when required (plug-ins...).

The trainee shall have solid skills in computer programming (Python, C/C++, Matlab to a least extent) and software development process (Jira, Jenkins...), plus image processing background knowledge as well (GDAL, OpenCV...).

### Company background

The Space System business line of Airbus Defence & Space is the European leader in the field of optical Earth Observation systems. The company, through its history, is a pioneer of space industry, responsible for the development of the first Earth Observation space systems in Europe, starting with the SPOT family. Since this time, the company has led the major European developments in the fields, through programs such as METOP, ERS, ENVISAT, HELIOS, PLEIADES or SPOT6. This experience developed is now applied on export turn-key programs such as FORMOSAT, THEOS, ALSAT, CHILI, KazEOSat-1 or PeruSat, involving up to sub metric resolution systems, or such as COMS, a geostationary meteorological satellite for Korea.

This evolution conveyed Airbus Defence & Space to develop a strong expertise in Image Quality, Image Processing and Image Simulation through a group of about 80 engineers in 2017, constituting the Sensor



Processing Chain department (TESUI). The Image team carries out activities in fundamental image domains such as image simulation, ground processing, image quality, in-orbit testing, embedded processing, vision-based navigation, deep learning and dedicated R&D activities.

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**Required knowledge**

- Software development
- Image processing
- Python, C/C++, some knowledge of Matlab
- Windows & Linux OS

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**Desired education**

- Engineering school or Master in software development, with knowledge in image processing,

Training period length: **5 to 6 months in 2018**

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<b>Location</b>	Airbus Defence & Space – Space Systems 31 rue des cosmonautes 31402 <b>Toulouse</b> Cedex 4, <b>France</b>
<b>Unit</b>	TESUI – Sensor Processing Chain department
<b>Deadline</b>	15/12/2017
<b>Contact</b>	<a href="mailto:stages-image-airbus@airbus.com">stages-image-airbus@airbus.com</a>

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