

Training title: *Satellite image processing: from R&D to operational systems*

Field: Operations and R&D

Speciality: Image processing

Subject

Image performance is the key components of the acquisition chain for observation and planetary exploration missions. Needs in processing are of various types. Space systems usual processing involves restoration, registration, image fusion, features detection, image simulation. Newer applications involve 3D, videos, tracking and navigation.

We are searching several trainees to work on 3 kinds of algorithmic thematic. Depending on the planning of the internship, the contents may be adapted to be as interesting as possible. The subjects already identified this year may be in the following list:

Theme a/ R&D on operational systems imaging performance monitoring: for instance

- Automatic image performance monitoring of in-orbit satellite (ex SPOT6&7)
- Very precise imaging geometry for high resolution satellite

Theme b/ R&D on video & 3D imaging: for instance

- Navigation in very large video feeds
- Usage of a Virtual Reality device
- 3D model automatic refining

Theme c/ Operational processing development using open sources

The objective of the training period is to make use of Image Processing open source libraries in order to extend or replace existing operational functions in our operational image processing modules, keeping a high technical quality/performance level (accuracy, timeliness). Operational image processing software will be developed in C++ and Python languages.

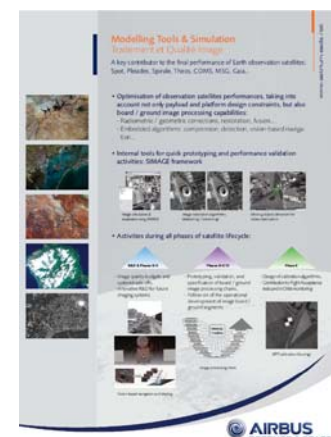
The trainees shall have both a solid image processing background and computer programming skills (Matlab and/or C/C++, Python,..).



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 field, 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 or KazEOSat-1, 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 50 engineers in 2015, constituting the Image Chain department. The Image team carries out activities in



TRAINING PERIOD 2016

Image processing for space applications

fundamental image domains such as Image simulation, Ground processing, Image quality, In-orbit testing, Embedded processing, Vision based navigation and Dedicated R&D activities.

Required knowledge

- Generic knowledge in image processing as well as numerical analysis,
- Matlab or C/C++, Python ; Windows & Linux OS

Desired education

- Engineering school or Master, with specialisation in signal and image processing, or applied mathematics.

Training period length: **5 to 9 months between January and September 2016.**
+ Possibility of a one year internship.

Location	Airbus Defence & Space – Space Systems 31 rue des cosmonautes 31402 Toulouse Cedex 4, France
Unit	TSOEF52 – Image Chain department
Contact	David Villa Pascual: David.VILLAPASCUAL@airbus.com
