REF : NB10301271

Training title: *Satellite Image Processing: Massive Processing Infrastructure.*
Field: Processing Infrastructure, High Power Computing, Big Data
Speciality: Computer Science, Image processing

Subject

The future image processing chain for earth observation satellite will require much more processing capability.
In addition, more and more satellite images are available and ready to be used for further exploitation but requiring massive processing capability.
Our operational systems are deployed on several tens of locations all around the world.

We are searching several trainees to work on 2 kinds of infrastructure thematic.

Theme a/ R&D on new processing frameworks and infrastructures using Big Data technologies:
The objective of the training period is to reinforce the dedicated R&D team to explore the application of Big Data technologies (Hadoop, Spark, Docker, NoSql …) to our systems and provide some answers to new needs.
Among the possible themes of the training period:
- Implementation of an image processing use case using open source frameworks
- Definition of the data formats to optimise the image processing parallelisation
- Performance optimisation of existing image processing use cases.

Theme b/ Operational processing frameworks and infrastructures evolution
Our existing infrastructure uses a large panel of technologies (Eclipse RCP, Java EE, Python, GWT, RCP, PostegreSql). We are continuously improving our systems by upgrading some of our functionalities. The objective of the training period will be to contribute to developments on subjects such as
- GUI/3D/globe visualisation
- Automated installation of a complex HW/SW system

Depending on the precise activity the trainee will be in charge of:
- Performing a state of the art of the existing solutions
- Implement the solution using representative use case and data
- Perform the tests and report of the results

Depending on the planning of the internship, and the progress of the current work, the contents may be adapted to be as interesting as possible.

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 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 (TSOEF52). 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 and Dedicated R&D activities.

Required knowledge
- Software development,
- Processing framework, processing massive parallelisation,
- Generic knowledge in image processing,
- C++, Python, JAVA, possibly Julia.
- Knowledge around Hadoop / Spark framework would be a plus.
- Agile development

Desired education
Engineering school or Master, with specialisation in signal and image processing, and software development

Training period length: **5 to 9 months between January and September 2016.**

Location	Airbus Defence & Space – Space Systems
	31 rue des cosmonautes 31402 **Toulouse** Cedex 4, **France**
Unit	TSOEF52 – Image Chain department
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