

Career Development Plan-Year 1

Name of fellow: Jordi Garcia
Department: DLR-DFD-US
Name of Supervisor: Dr. R. Richter
Date: 31.1.2008

BRIEF OVERVIEW OF RESEARCH PROJECT AND MAJOR ACCOMPLISHMENTS EXPECTED (half page should be sufficient):

The following tasks are foreseen within the contract ESR2: a modular sensor simulation tool shall be designed and implemented. It comprises the spectral, radiometric, and geometric instrument characterization using a modular software design with the components: optics, dispersing elements (grating, prism, spectral filters), noise sources, SNR, MTF, coregistration offsets between different spectrometer units of an instrument.

The toolbox shall be flexible to support the simulation and assessment of future hyperspectral and multispectral instruments in the solar reflective region (400 - 2500 nm). Synthetic scenes shall be simulated using spectral reflectance/emissivity databases for different applications (e.g., agriculture, forestry, mineralogy) employing results of radiative transfer calculations available in atmospheric databases. Scene simulations for the at-sensor radiances for airborne or spaceborne instruments may include channel noise to enable a study of the achievable surface reflectance retrieval accuracy for different application fields. The toolbox shall be used to support lab and vicarious calibration activities.

LONG-TERM CAREER OBJECTIVES (over 5 years):

1. Goals:
In addition to the concept presented above, the research shall result in a PhD thesis.
2. What further research activity or other training is needed to attain these goals?
If applicable, additional University courses have to be attended in order to obtain the required ECTS credits.

SHORT-TERM OBJECTIVES (1-2 years):

1. Research results
 - Anticipated publications:
Conference papers
 - Anticipated conference, workshop attendance, courses, and /or seminar presentations:
Participation in international conferences (e.g., EARSeL SIG-IS, SPIE, IGARSS) with the focus on hyperspectral remote sensing. Participation in HYPER-I-NET summer schools.
2. Research Skills and techniques:
 - Training in specific new areas, or technical expertise etc:
Simulation of complete optical sensors, development of an end-to-end simulation chain, including optics, focal plane, signal processor, geometry (PSF, Keystone, co-registration), smile, radiative transfer models (MODTRAN, 6S), surface reflectance signatures, scene simulation.
3. Research management:
 - Fellowship or other funding applications planned (indicate name of award if known; include fellowships with entire funding periods, grants written/applied for/received, professional society presentation awards or travel awards, etc.)
None
 - Communication skills:
Presentation at international conferences and internal status reports.

4. Other professional training (course work, teaching activity):
HYPER-I-NET summer schools, University courses

5. Anticipated networking opportunities
Contact with other HYPER-I-NET ESRs and institutions, close contact with
KAYSER-THREDE company.

6. Other activities (community, etc) with professional relevance:
Preparation of HYPER-I-Net e-learning courses. Language courses.

10.1. Feb. 2008



Date & Signature of fellow:

12.08 R. Richter

Date & Signature of supervisor