

# Sergi Pons Freixes

Curriculum Vitae

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## Experience

- 2011 – present **Spanish Trainee**, *European Space Agency*.  
Earth Observation Exploitation and Services Division
- 2007 – 2011 **Assistant Researcher**, *Marine Technology Unit, Spanish National Research Council (UTM-CSIC)*.  
Department of Research and Technological Innovation
- 2004 – 2006 **Assistant Researcher**, *Technical University of Catalonia (UPC)*.  
Development of hardware and software skills related to embedded systems and hyperspectral sensors

## Advisor of Master Thesis

- Title *Sistema de processat d'imatges per observatoris oceanogràfics*
- Author Albert Martin
- Institution Technical University of Catalonia (UPC)
- Description Image processing system for oceanographic observatories
- Year 2010
- Title *Desenvolupament d'una eina Software per al control d'espectròmetres a través de dispositius PDA*
- Author Núria Pujol
- Institution Technical University of Catalonia (UPC)
- Description Development of software to control and acquire data from spectrometers using PDA devices
- Year 2008

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## Education

- 2007 – present **Ph.D. Candidate**, *Marine Technology Unit, Spanish National Research Council (UTM-CSIC)*.  
Design and development of knowledge-based systems for ocean observatories  
Supervisors: Jaume Piera, Luigi Ceccaroni
- 2004 – 2006 **Master degree in Telecommunications Engineering**,  
*Technical University of Catalonia (UPC)*.  
With business management profile
- 2000 – 2004 **Telecommunications Engineer**, *Technical University of Catalonia (UPC)*.  
Three-year university course

## Advanced Studies Diploma

Title *Advanced Studies Diploma in Signal Theory and Communications Doctorate*  
Supervisors Jaume Piera, Luigi Ceccaroni  
Description For completing the teaching and research stages in the Signal Theory and Communications Doctorate program  
Year 2008

### Master Thesis

Title *Espectroradiòmetre intel·ligent basat en dsPIC*  
Supervisors Jaume Piera  
Description Intelligent spectroradiometer based on dsPIC. Design and development of hardware and software for an oceanographic probe consisting on depth and hyperspectral sensors  
Year 2006

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### Languages

Catalan **Mother Tongue**  
Spanish **Mother Tongue**  
English **First Certificate in English**

*University of Cambridge*

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### Participation in research projects

- 2009 – present **SUMMER. SURface Mixing Modulation of the Exposure to solar Radiation, Marine Technology Unit, Artificial Intelligence Research Institute, Industrial Automation Institute, Institute of Marine Sciences.**  
In situ evaluation of surface mixing modulation of the exposure to solar Radiation on the ocean  
Funded from: Spanish National Research Council
- 2008 – present **ANERIS. ANálisis y desarrollo de una sonda oceánográfica Inteligente con capacidad autónoma de obtención de muestra, Marine Technology Unit, Artificial Intelligence Research Institute, Industrial Automation Institute, Institute of Marine Sciences.**  
Analysis and development of an intelligent oceanographic probe with autonomous capacity for obtaining samples  
Funded from: Spanish National Research Council
- 2006 – 2007 **HIDRA. Caracterización Hiperespectral del ambiente lumínico en el oceano mediante modelos de transferencia radiativa, Marine Technology Unit.**  
Hyperspectral characterization of the luminescent ambient on the ocean using radiative transfer models  
Funded from: Spanish National Research Council
- 2004 – 2007 **SAMPLER. Desarrollo de un Sistema de adquisición y Análisis de datos oceanográficos de Microestructura y Perfiles hiperespectrales, Technical University of Catalonia, Marine Technology Unit.**  
Development of an acquisition and analysis system for microstructure oceanographic data and hyperspectral profiles  
Funded from: Spanish Ministry of Education and Science

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## Stays in foreign institutions

- 2010 **Five months stay**, *Monterey Bay Aquarium Research Institute (MBARI)*, Moss Landing (California, USA).  
Short stays in Spain and foreign Institutions program for Ph.D. Students from CSIC
- 2008 **Three months stay**, *Department of Computer science and Information Sciences, University of Strathclyde*, Glasgow (Scotland).  
Short stays in Spain and foreign Institutions program for Ph.D. Students from CSIC

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## Awards

- 2010 **Finalist in student poster competition**, *IEEE/OEE Oceans Conference and Exhibition, Oceans'10*, Sydney (Australia).  
Video-image processing applied to the analysis of the behaviour of deep-water lobsters (*Nephrops norvegicus*)
- 2007 **3rd prize in student poster competition**, *IEEE/OEE Oceans Conference and Exhibition, Oceans'07*, Aberdeen (Scotland).  
Monolithic spectrometer for environmental monitoring applications

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## Workshops and conferences attended

- 2010 **IEEE/OEE Oceans Conference and Exhibition, Oceans'10**, Sydney (Australia).
- 2009 **Martech'09, International Workshop on Marine Technology**, Vilanova i la Geltrú (Spain).
- 2009 **EOS Topical Meeting on "Blue" Photonics - Optics in the Sea**, Aberdeen (Scotland).
- 2009 **IEEE/OEE Oceans Conference and Exhibition, Oceans'09**, Bremen (Germany).
- 2009 **ESONET Training Workshop #2**, Bremen (Germany).
- 2008 **ESONET Best Practices Workshop**, Bremen (Germany).
- 2008 **ESONET Training Workshop #1**, *Jacobs University*, Bremen (Germany).
- 2007 **Martech'07, International Workshop on Marine Technology**, Vilanova i la Geltrú (Spain).
- 2007 **ESONET All Regions Workshop #1**, Barcelona (Spain).
- 2007 **IEEE/OEE Oceans Conference and Exhibition, Oceans'07**, Aberdeen (Scotland).

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## Publications

I.F. Aymerich, S. Pons, J. Piera, E. Torrecilla, and O.N. Ross. Comparison between hyperspectral irradiance reflectance and diffuse attenuation coefficient as indicators of algae presence in the water column. In *IEEE Second workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing, WHIPSERS'10*, 2010. Accepted for publication.

J. Piera, S. Pons, M. Merchan, and R. Quesada. Control of Monolithic Spectrometer: Applications for environmental monitoring. *Instrumentation ViewPoint*, 4:8–9, 2004.

J. Piera, R. Quesada, E. Torrecilla, I. Fernández, and S. Pons. An instrumentation project for studying the effects of turbulence in aquatic systems. *Instrumentation ViewPoint*, 4:30–31, 2005.

- S. Pons, J. Aguzzi, and J. Piera. Automated video-image analysis of the behaviour of deep-water lobsters (*Nephrops norvegicus*). *Instrumentation Viewpoint*, 8(77):9, 2009.
- S. Pons, J. Aguzzi, and J. Piera. Video-image processing applied to the analysis of the behaviour of deep-water lobsters (*Nephrops norvegicus*). In *IEEE/OEE Oceans Conference and Exhibition, Oceans'10 Sydney*, 2010. Accepted for publication.
- S. Pons, I.F. Aymerich, E. Torrecilla, and J. Piera. Low cost hyperspectral device suitable for monitoring sensor networks. *Instrumentation ViewPoint*, 6:60–61, 2007.
- S. Pons, I.F. Aymerich, E. Torrecilla, and J. Piera. Monolithic spectrometer for environmental monitoring applications. In *IEEE/OEE Oceans Conference and Exhibition, Oceans'07 Aberdeen*, 2007.
- S. Pons, L. Ceccaroni, and J. Piera. Design of a sensor network with adaptive sampling. In *iEMSs 2008 Conference (The International Environmental Modelling and Software Society Conference)*, 2008.
- S. Pons, E. Torrecilla, M. Vilaseca, and J. Piera. Low cost hyperspectral sensors: potential applications for characterization of multi-scale ocean processes. In *EOS Topical Meeting on "Blue" Photonics - Optics in the Sea*, 2009.
- R. Quesada, J. Piera, I. Fernández, E. Torrecilla, and S. Pons. Turbulent oceanic flow characterization derived from high-resolution CTD data processing. *Instrumentation ViewPoint*, 4:31–32, 2005.
- E. Torrecilla, I.F. Aymerich, S. Pons, and J. Piera. Effect of spectral resolution in hyperspectral data analysis. In *IEEE International Geoscience And Remote Sensing Symposium, 2007. IGARSS 2007*, pages 910–913, 2007.
- E. Torrecilla, J. Piera, I.F. Aymerich, S. Pons, O.N. Ross, and M. Vilaseca. Hyperspectral remote sensing of phytoplankton assemblages in the ocean: effects of the vertical distribution. In *IEEE Second workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing, WHIPSERS'10*, 2010. Accepted for publication.
- E. Torrecilla, J. Piera, R. Quesada, I. Fernández, and S. Pons. Characterization of the water optical properties using hyperspectral sensors. *Instrumentation ViewPoint*, 4:48–49, 2005.
- E. Torrecilla, S. Pons, I.F. Aymerich, and J. Piera. Comparative response of two different hyperspectral sensors. Application to derivative analysis of absorption spectra. *Instrumentation ViewPoint*, 6:86–87, 2007.
- E. Torrecilla, S. Pons, A. Vilamala, I.F. Aymerich, J. Arcos, E. Plaza, and J. Piera. Mapping marine phytoplankton assemblages from a hyperspectral and Artificial Intelligence perspective. In *IEEE/OEE Oceans Conference and Exhibition, Oceans'10 Sydney*, 2010. Accepted for publication.
- E. Torrecilla, S. Pons, M. Vilaseca, J. Piera, and J. Pujol. Stray-light correction of in-water array spectroradiometers. Effects on underwater optical measurements. In *IEEE/OEE Oceans Conference and Exhibition, Oceans'08*, 2008.