

Curriculum Vitae for Ada Ortiz-Carbonell

Personal information

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Summary

I hold a PhD in Physics from 2003 specializing in Solar Physics. Since then I have 20 years of experience in data mining, image analysis, time-series analysis and spectral analysis. With time I have expanded my research subjects and used different methods including statistical data analysis. I am also becoming interested in machine learning techniques.

I consider myself very perseverant and used to overcome adversity in a scientific environment by being creative, hard-working, and having an analytical mindset. Excellence, accuracy and detail define my scientific work. I have well-proven organisational capabilities. My colleagues regard me as an excellent communicator and an all-terrain asset. I have experience in leading international collaborations, management of grants, student mentoring and scientific outreach. I consider myself a responsible and organised team player.

Technical skills

Frameworks	Numpy, Matplotlib
Languages	IDL, Matlab, Python, Fortran, LaTeX
Scientific skills	Image analysis, pattern recognition, anomaly detection, analysis of time series, analytical modelling, statistical analysis
Tools	Mac OS X and Unix

Education

2000 - 2003	PhD in Physics. University of Barcelona (Spain). Thesis title: "Solar irradiance variations induced by faculae and small magnetic elements in the photosphere". <i>Cum Laude</i> by unanimity.
1997 - 2000	Research Proficiency. University of Barcelona (Spain)
1993 - 1997	Licentiate in Physics. University of Barcelona (Spain)

Professional experience

2000 – 2003	PhD student. University of Barcelona (Spain). Appointment including 25% teaching/administration and 75% research training.
2004 – 2006	Postdoctoral fellow. High Altitude Observatory, National Center for Atmospheric Research,(Boulder, USA)
2007 – 2010	Postdoctoral fellow. Institute of Theoretical Astrophysics, University of Oslo, (Norway)
2013 – 2014	Lecturer. Institute of Theoretical Astrophysics, University of Oslo, (Norway)
2010 – 2019	Researcher. Institute of Theoretical Astrophysics, University of Oslo, (Norway)
2019 –	Data scientist. Expert Analytics (Oslo, Norway)

Languages

Catalan	mother tongue
English	fluent
Italian	intermediate
Norwegian	basic
Spanish	mother tongue

Personal skills

Analitical thinking	I have the ability to tackle the unknown by collecting the necessary information, analyzing and interpreting it, obtaining results using cross-disciplinary methods, and present them in an easy-to-understand manner. I am well-versed in organisation and planning of tasks.
Communication and writing skills	I am regarded by my peers as an excellent speaker, both in scientific talks to an specialized audience or in educating the public. Proven experience in writing scientific articles and documents.
Complex problem solving	I like applying creativity to break down complex problems into smaller parts that can be tackled in an easier way, but keeping the big picture in mind at the same time. Combine methods from different disciplines (or learning new ones) to solve problems.
Leadership	Thanks to holding a few research grants involving international collaborations, I have earned experience as project leader and manager. I also feel comfortable as team member where I am organized, structured and a responsible player.
Organizational skills	I have well-proven experience as organizer for several international conferences and schools, where I have done everything from managing the logistical aspects, setting up the conference's websites and planning the scientific programmes.

Teaching and outreach	Being Lecturer at the University of Oslo provided me with the ability to explain difficult material and break it down in an understandable language for the non-expert. I also have significant experience in outreach explaining complex science to the general public and engaging them into the wonders of the Universe.
Versatile and all-terrain	I feel comfortable whether it is scientific, administration, logistics, organisation or managing tasks.

Some interests and hobbies

Scientific outreach	outreach officer in Norway for the European Solar Telescope project, Astronomy on Tap (astronomy for the general public), and scientific talks for the general public
Sports	Alpine skiing, scuba diving, martial arts, white-water rafting

Extended descriptions of selected projects

Activity	Observing and understanding flux emergence using IRIS and SST coordinated data. Research project funded by the Research Council of Norway.
Role	Project leader
Staffing	2 members and 5 collaborators
Description	This effort aimed at studying how magnetic fields living in the interior of the Sun rise up and trespass the surface of the star while continuing their journey up through the solar atmosphere. The project involves combining big data sets (images and spectra) both from space and ground-based observatories, image analysis, spectral analysis across several wavelengths ranges, student mentoring, statistical analysis, and comparison with numerical simulations.

Activity	Space and ground-based observations of the solar atmosphere. Research project funded by the Research Council of Norway.
Role	Project leader and grant holder
Staffing	me, with 4 collaborators
Description	The goal of this project was to study the lower part of the solar atmosphere at the highest spatial resolution, in order to see the smallest details ever seen on the surface of a star. Both the dynamics and magnetism of the physical processes going on in the surface were studied. The project involved the analysis of big data sets of images and spectra, time series, data reduction (cleaning the data from instrumental affects and make it ready-to-use), feature tracking algorithms, and statistical data analysis.

Activity	Science communication and outreach. Norwegian EST Communication Officer.
Role	member of organising committee

Staffing	4 members
Description	I am in charge of organizing and managing a series of posts in the social media about the Sun and the European Solar Telescope project in order to educate the general public about the importance of studying our nearest star. Also in charge of the outreach and education activities in Norway related to the EST project.
Activity	Organisation of international conferences and schools
Role	co-organizer
Staffing	2 members
Description	I have organised 7 schools and international conferences since 2010. My tasks involved everything from planning the scientific programme, managing the logistical aspects, being in charge of the conference's websites and designing the logos and banners. In addition to these, I have been convener of 2 symposia (part of big astronomical meetings with +10000 attendants) where I was responsible for the scientific programme.
Activity	European Solar Telescope Science Advisory Group member. Infrastructure and technological project funded by the European Union H2020 Framework and national funding agencies.
Role	core member
Staffing	21 members
Description	Here we define and evaluate the scientific questions that will be tackled by the next generation 4 meter class European Solar Telescope. This project is an infrastructure, technological and scientific challenge of pan-European dimensions involving 16 countries and 23 scientific institutions. Budget = 200 MEuros. Our task is to envision the questions about the Sun that will be interesting in 10 years and design the instrumentation that will be necessary to tackle those questions.