David Pérez-Suárez

CONTACT INFORMATION

Mullard Space Science Laboratory
Holmbury St. Mary
Dorking
Surrey, RH5 6NT (United Kingdom)

Work: +44 (0)1483 204 257
Mobile: +44 (0)7970 573 496
*E-mail:*d.perez-suarez@ucl.ac.uk

EDUCATION

2005 - 2011 **Ph.D., Solar Physics:** *Multi-layer Analysis of Coronal Bright Points*
Armagh Observatory, Armagh, N. Ireland, UK &
Queen's University of Belfast, Belfast, N. Ireland, UK

2000 - 2005 **B.S., Physics Science** (*Specialisation: Astrophysics*)
Universidad de La Laguna, La Laguna, Tenerife, Spain

EXPERIENCE

April 2015 - Present **Research Software Developer** at Information Software Information (UCL)

Service: Programming support to various research disciplines in UCL.

Teaching: Deliver training courses about computing to students and researchers.

Dec 2014 - March 2015 **Post-Doctoral Research Associate** at MSSL – University College London

Research: Improvement and adaptation of a global solar waves detection algorithm (CorPITA) to work with the the Improved Solar Observing Optical Network (ISOON), a ground-based telescope based in New Mexico (US).

Service: Programming support to the solar physics team, including training to staff and students in good programming practices.

Supervision: Co-supervision of PhD student based at the Finnish Meteorological Institute and supervision of a UCL Computer Science summer student to implement Hinode/EIS data analysis tools in SunPy.

Oct 2014 - Dec 2014 **Post-Doctoral position** at the Finnish Meteorological Institute

Service: Implementation and deployment of ESPAS webservice for the IMAGE.

Oct 2013 - Sep 2014 **Post-Doctoral position** at the South African National Space Agency

Research: Analysis and implementation of algorithms for different products of the Space Weather Team such as short term forecasting of sunspots number and quiet sun daily variation on geo-magnetic measurements for K-index calculation. Also, scientific assistance in the installation of an e-Callisto station in Hermanus.

Service: Scientific support on solar physics to the Space Weather Team, preparation of the space weather forecast bulletins for general public and private clients, co-mentor team's intern, and train SANSA's staff and students in programming.

Teaching: Arrange and deliver lectures in solar physics and space weather for different courses and schools to students and clients, but also an in depth solar physics course to the Space Weather Team.

Outreach: Tours and activities with visitors at SANSA's Space Weather Center.

Oct 2012 - Sep 2013 **Post-Doctoral position** at the Finnish Meteorological Institute

Research: Analysis of coronal holes' shape over the whole SoHO era and the solar wind properties as part of the HISSI team leaded by Dr. Tanskanen.

Service: Development of data wrappers for IMAGE magnetometers network and the Hybrid Web Archive webservices to be used by the European Commission's Seventh Framework Programme (EC's FP7) ESPAS and IMPEx projects.

Aug 2009 - Sep 2012 **Post-Doctoral Research Fellow** at Trinity College Dublin

Research: Active role in the scientific and developer teams at the EC's FP7 HEliophysics Integrated Observatory (HELIO) project working in the development and implementation of automated solar feature detection algorithms and heliospheric propagation models.

Teaching: Oral assessments and experiment report grading of 2nd year undergraduate physics students.

Supervision: Supervision, co-supervision and grading of astrophysics final year research projects on the School of Physics.

Service: Web designer and curator of www.SolarMonitor.org.

Successful Grants

I have participated on the elaboration of the proposals for the following successful grants:

Royal Astronomical Society grant for an undergraduate research bursary to implement Hinode/EIS analysis routines in Python (Feb 2015).

Zooniverse project for classification of solar active regions (Dec 2012).

Can we survive a day without satellite navigation? a space weather session on the Euroscience Open Forum 2012, Dublin (Aug 2012).

Two grants for Indian students to study and research at Trinity College Dublin under the *HEAD Government of Ireland India* scheme (Jun 2012).

Student for the development of SunPy (Python for solar physicists) in the ESA's Summer of Code in Space 2011, 2012, 2013, 2014 and 2015 programme (Aug 2011, Aug 2012, Jul 2013, Jul 2014, Jul 2015) and in the Google Summer of Code 2013, 2014 and 2015 as part of the Python Software Foundation (Apr 2013, Apr 2014, Apr 2015).

SolarMonitor mobile: A summer internship for a undergraduate computer science student to develop a smart phone application to access www.SolarMonitor.org. The internship was supported by the Innovation Bursaries 2010 scheme (Spring 2010).

Observations

Experience with different type of instruments from space- and ground-based observatories.

- Space-based observations:

  Familiar with a variety of space-born instruments such as optical, EUV and x-rays imagers, spectrographs and magnetographs from different spacecraft: SDO, Hinode, STEREO, TRACE and SoHO.

- Ground-based observations:

  DST, Sac Peak, New Mexico, US

  - 18-19 & 23-24 January 2006. Joint Observing Program (JOP 184) observing together with SoHO and TRACE.

  IAC80, Observatorio del Teide, Tenerife, Spain.

  - Multiple observations during the Astrophysics degree. Some of the targets observed were: galaxies, and galactic and globular clusters.

  Faculty Telescope, ULL, La Laguna, Tenerife, Spain.

  - Multiple observations to study the variability of an asteroid.
  - Solar Observations to sunspots to study the solar rotation.

International collaborations

ER-Flow - EC's FP7 project

- Scientific consultant and workflows developer for the Heliophysics team lead by Dr. Gabriele Pierantoni. 2013 - 2014.

IIA (British Council Royal Society Join Programme Scheme), Bangalore, India.

- Off-limb project with Dr. Dipankar Banerjee. Apr 2009.
- Loop project with Dr. Dipankar Banerjee. May 2008.

Universidad de Málaga, Spain.

- Automated Image Features Detection on Solar Images with Dr. M Carmen Aranda Garrido and Dr. Marlon Nuez Paz. Feb 2009.

HAO, Boulder (Colorado), USA.

- Improving of a Nine years database of Coronal Bright points with Dr. Scott McIntosh. Oct 2008.

Max Plank Institute, Lindau, Germany.

- Reduction analysis of TRACE and DST images with Dr. Maria Madjarska and Dr. Shaun Bloomfield. Jul 2006.

QUB, Belfast, N. Ireland.

- Bright Points detection from DST images with Professor Mihalis Mathioudakis and David Jess. Jun 2006.

Community

Active developer and vice-chair of SunPy, an organization that aims to develop an open-source solar data-analysis software based on the scientific Python environment. Software Package started in 2011, organisation instaured 2014.

Member of the Science Organiser Commitee of a training session on heliophysics virtual observatory tools at EGU. 30 April, 2014.

Instructor of Software-Carpentry, a volunteer organization whose goal is to teach basic computing skills to scientists. Member since August 2013.

Member of the Solar Orbiter Data Analysis Working Group as SunPy.

Coordinator of a session at the European Science Open Forum (ESOF) in Dublin. 2-7 July, 2012.

HELIO Coordinated Data Analysis Workshop 1 and 4 at Trinity College Dublin. Member of the the Science and Local Organiser Committee. 11-13 April, 2011; 4-7 September, 2012.

Webmaster and developer of SolarMonitor.org. 2010 - Present.

Solar Summer School at Armagh Observatory: An Overview of the Coupled Earth-Sun System. Webmaster and Member of the Local Organiser Committee. 9-14 September, 2007.

Referee of book chapter on image processing techniques and articles on the Journal of Space Weather and Space Climate.

Technical Skills

Extensive software experience in UNIX-like system administration as well as programming experience mainly in Python, IDL (*SolarSoft*, image analysis, visualisation...), web development, and graphic design of posters for advertising science conferences, meetings, talks and outreach activities.

Outreach

Organisation of outreach activities for all ages groups and attendance to conferences about science and the web.

Activities

Zooniverse project for classification of active regions. Web Citizen Science Project to obtain statistics on the detection and classification of solar active regions. Launched on Februrary 2014

SUAS Bridge To College (B2C) Programme. Secondary school kids are introduced to the university life through team-work activities. Trinity College Dublin.

Armagh Observatory Tours. People from different backgrounds visit Armagh Observatory every time on the year. I have led different tours showing the telescopes and the exhibitions on the grounds of the observatory (human orrery, scale model of the solar system and universe).

Armagh Observatory Schools activities. Once a year schools from all around Ireland go to Armagh to do different activities related with astronomy. I have been at charge of teaching groups of 30 secondary school kids.

Outreach related Conferences:

Zooniverse 2 (Chicago, 2013)

DotAstronomy 4 (Heidelberg, 2012)

Science Online London (2010 and 2011)

Languages

Spanish: native	English: Fluent	Italian: Intermediate
Irish Sign Language: Intermediate	Finnish: Beginner	

Extra education

Online courses:

- Introduction to Artificial Intelligence – Dec 2012 – Udacity
- Introduction to Computer Science – Apr 2013 – Udadictiy
- Artificial Intelligence for Robotics – Apr 2013 – Udacity
- Software Carpentry Instructor training – Aug 2013 – Software Carpentry
- Introduction to Public Speaking – Sep 2013 – Coursera
- Understanding Europe – April 2014 – Coursera
- Machine Learning – Dec 2014 – Coursera

Publications

Refereed

- The SunPy Community, Mumford, S., Christe, S., **Pérez-Suárez, D.**, Ireland, J., Shih, A., Inglis, A., Liedtke, S., Hewett, R., Mayer, F., Hughitt, K., Freij, N., Meszaros, T., Bennett, S., Malocha, M., Evans, J., Agrawal, A., Leonard, A., Robitaille, T., Mampaey, B., Campos-Rozo J. and KirkLong, M.; "SunPy - Python for Solar Physics"'
  Comp. Science & Discovery, 8 014009 (2015); DOI: 10.1088/1749-4699/8/1/014009
- Long, D. M., Bloomfield, D. S., Gallagher, P. T. and **Pérez-Suárez, D.**; "CorPITA: An Automated Algorithm for the Identification and Analysis of Coronal 'EIT Waves"'
  Solar Physics, 289(9), 3279-3295. (2014); DOI: 10.1007/s11207-014-0527-5
- Bentley, R. B., Brooke, J., Csillaghy, A., Fellows, D., Le Blanc, A., Messerotti, M., **Pérez-Suárez, D.**, Pierantoni, G. and Soldati, M. "HELIO: Discovery and analysis of data in heliophysics"
  Fut Gener Comp Sy, 29(8), 2157-2168. (2013); DOI: 10.1016/j.future.2013.04.006
- Le Blanc, A., Brooke, J., Fellows, D., Soldati, M., **Pérez-Suárez, D.**, Marassi, A., Santin, A.
  "Workflows for Heliophysics"
  Journal of Grid Computing, 11(3), 481-503 (2013); DOI: 10.1007/s10723-013-9256-5
- **Pérez-Suárez, D**, Maloney, S. A. , Higgins, P. A., Bloomfield, D. S., Gallagher, P. T., Pierantoni, G., Bonnin, X., Cecconi, B., Alberti, V., Bocchialini, K., Dierckxsens, M., Opitz, A., Le Blanc, A., Aboudarham, J., Bentley, R. B., Brooke, J., Coghlan, B., Csillaghy, A., Jacquey, C., Lavraud, B. and Messerotti, M. "Studying SunPlanet Connections Using the Heliophysics Integrated Observatory (HELIO)"
  Solar Physics, 280(2), 603-621. (2012); DOI: 10.1007/s11207-012-0110-x
- Bentley, R. B., Brooke, J., Csillaghy, A., Fellows, D., Le Blanc, A., Messerotti, M., **Pérez-Suárez, D.**, Pierantoni, G. and Soldati, M. "HELIO: Discovery and Analysis of Data in Heliophysics"
  E-Science (e-Science), 2011 IEEE 7th International Conference on, 248-255;
  DOI: 10.1109/eScience.2011.42
- **Pérez-Suárez, D**, Higgins, P. A., Bloomfield, D. S., McAteer, R. T. J., Krista, L. D., Byrne, J. B. and Gallagher, P. T. "Automated Solar Feature Detection for Space Weather Applications"
  Applied Signal and Image Processing: Multidisciplinary Advancements, Chapter 13, 207-225 (2011); DOI: 10.4018/978-1-60960-477-6
- Doyle, J. G., Chapman, S., Bryans, P., **Pérez-Suárez, D.**, Singh, A., Summers, H. and Savin, D. W. "Deriving the coronal hole electron temperature: electron density dependent ionization / recombination considerations"
  Research in Astronomy and Astrophysics, 10(1), 91-95 (2010); DOI: 10.1088/1674-4527/10/1/008
- Banerjee, D., **Pérez-Suárez, D.** and Doyle, J. G. "Signatures of Alfvén waves in the polar coronal holes as seen by EIS/Hinode"
  A&A, 501(3), L15-L18 (2009); DOI: 10.1051/0004-6361/200912242
- **Pérez-Suárez, D.**, Maclean, R. C. Doyle, J. G. and Madjarska, M. S. "The structure and dynamics of a bright point as seen with Hinode, SoHO and TRACE"
  A&A, 492(2), 575-583 (2008); DOI: 10.1051/0004-6361:200809507

Referees

These persons are familiar with my professional qualifications and my character:

Dr. Dipankar Banerjee
Indian Institute of Astrophysics
Koramangala
Bangalore
560034
India

Tel: +91 80 25530672 (ext 431)
Fax: +91 80 25534043
E-mail: dipu@iiap.res.in
web: http://tinyurl.com/odz9ww

Prof. Peter T. Gallagher
Astrophysics Research Group
Trinity College Dublin
College Green
Dublin 2
Ireland

Tel: +353 (0)1 896 1300
Fax: +353 (0)1 671 1759
E-mail: peter.gallagher@tcd.ie
web: http://tiny.cc/ptgallagher

Dr. David Long
Mullard Space Science Laboratory
Holmbury St. Mary
Dorking
Surrey, RH5 6NT
United Kingdom

Tel: +44 (0)1483 204 268
Fax: +44 (0)1483 278 312
E-mail: david.long@ucl.ac.uk

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