

Gustau Camps-Valls

Full professor, Researcher
Image Processing Lab (IPL)
Universitat de València, Spain

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Personal Information

current position Full professor at [Dep. Eng. Electrònica](#), Universitat de València
Head of [Image and Signal Processing \(ISP\)](#) group, Universitat de València

Brief CV

Gustau Camps-Valls earned a Ph.D. degree in Physics (2002, *summa cum laude*) from the Universitat de València, and he is currently **Full Professor in Electrical Engineering** in the same university, where he lectures time series analysis, signal processing, image processing, AI and machine learning, and advanced remote sensing data processing. **He is the Group Leader of the Image and Signal Processing (ISP) group, <http://isp.uv.es>, an interdisciplinary group of 40 researchers working in the intersection of AI and machine learning for Earth and Climate sciences. He currently coordinates several European projects in these areas, and assists/ed the aerospace industry (ESA, EUMETSAT, NASA) as consultant and member of Advisory Boards.** He has been Visiting Researcher at the Remote Sensing Laboratory (Univ. Trento, Italy) in 2002, the Max Planck Institute (Tübingen, Germany) in 2009 and 2016, and as Invited Professor at the EPFL (Lausanne, Switzerland) in 2013, and at MPI (Jena, Germany) in 2018.

Prof. Camps-Valls research activities have resulted so far in **a total of 250 peer-reviewed international journal papers, 300+ international conference papers, 25 book chapters, and in editing 5 books on remote sensing, image processing and machine learning:** “Kernel methods in bioengineering, signal and image processing” (IGI, 2007), “Kernel methods for remote sensing data analysis” (Wiley & Sons, 2009), “Remote Sensing Image Processing” (MC, 2011), “Digital Signal Processing with Kernel Methods” (Wiley & Sons, 2018), and “Deep Learning for the Earth Sciences” (Wiley & Sons, 2021). **He has a *h*-index of 76 in Google Scholar, with more than 27000 citations, from which 16000+ were received in the last 5 years.** He was listed as a highly cited researcher in 2011, 2020 and 2021, and Thomson Reuters ScienceWatch identified my activities as [Fast Moving Front research](#) as the Essential Science Indicators identified me as the author of the most-cited paper in the area of Engineering in 2011. That was the seminal work about the introduction of kernel methods to the remote sensing and geoscience community. **More than 5 papers received more than 1000 citations each, and a paper about information fusion with kernels received the Google Classic paper award.** He has published seminal papers in Nature, Nature Communications, Science Advances, and PNAS.

He is a referee and Program Committee member of many international journals and conferences. He has served on the Program Committees of International Society for Optical Engineers (SPIE) Europe, International Geoscience and Remote Sensing Symposium (IGARSS), Machine Learning for Signal Processing (MLSP), and International Conference on Image Processing (ICIP) among others. He was the Technical Program Chair at IEEE IGARSS 2018, València (2400+ attendees), and the General Chair of AISTATS 2022, València. Since 2007 he is member of the Data Fusion technical committee of the IEEE GRSS, and of the MLSP TC of IEEE SPS. He is (or has been) Associate Editor of “IEEE Trans. Sig. Proc.”, “IEEE Sig. Proc. Lett.”, “IEEE Geosc. Rem. Sens. Lett.”, and Guest Editor of “IEEE Jour. Sel. Topics in Sig. Proc.”. **He was member of the MTG-IRS Science Team (MIST) of the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), since 2019 he is an Invited Professor Fellow of the [ESA PhiLab](#), and since 2021 acts as board member of the [European Science Foundation](#) advising ESA, EU and national space agencies. Since 2019 he is an ELLIS Fellow and coordinates the ‘Machine Learning for Earth and Climate Sciences’ research program of [ELLIS.eu](#), and node member in [ELISE](#) and [AI Doctoral Academy \(i-AIDA\)](#) for the advancement of AI in Europe.** Prof. Camps-Valls is habitual evaluator of project proposals for H2020 programs (ERC, FET), NSF, China Science Foundation, Swiss Science Fundation, etc.

Prof. Camps-Valls was included in the prestigious IEEE Distinguished Lecturer program of the IEEE GRSS (2017), elevated to IEEE Fellow in two Societies (Geosciences and Signal Processing, in 2018), and has received two European Research Council (ERC) grants: an ERC Consolidator grant (2015) and an ERC Synergy grant (2019) to advance AI for the Earth and Climate Sciences.

Degrees/Academics/Education

- PhD Physics. Universitat de València, September 2002.
MSc. Physics. Universitat de València, June 2000.
Bsc. Elec. Engin. Universitat de València, July 1998.
BSc Physics. Universitat de València, July 1996.

Professional Experience

Academic at the Universitat de València, Spain

- 10.2017– Full Professor, Catedrático
10.2009–10.2018 PhD Program coordinator. Electrical Eng. Dept. <http://die.uv.es>
10.2008– Head of 'Image and Signal Processing Group', <http://isp.uv.es>
10.2007–10.2008 Associate professor. Electrical Eng. Dept. <http://die.uv.es>
10.2002–09.2007 Tenure Track - Postdoc. Assist. Prof.
10.1998–09.2002 Assistant professor.

Visiting Researcher / Invited Professor

- 05.2018–07.2018 Max Planck Institute for BioGeoChemistry, Jena, Germany.
05.2016–10.2016 Max Planck Institute Intelligent Systems, Tübingen, Germany.
05.2013–07.2013 École Polytechnique Fédérale de Lausanne, Switzerland.
05.2009–10.2009 Max Planck Institute Intelligent Systems, Tübingen, Germany.
05.2004–10.2004 Università degli Studi di Trento, Italy.
05.2001–11.2001 Universidad Carlos III de Madrid, Spain.

Selected research funding

Total project funding received amounts to 6.4M€ as PI or co-PI.

- 02/11–07/12. Atmospheric corrections for fluorescence signal over land. ESA. 200K€
06/07–12/08. FLEX Performance Analysis and Requirements Consolidation Study. ESA. 200K€
09/07–03/09. Atmospheric Corrections for Fluorescence Signal Retrieval (FLEX-AC). ESA. 200K€
01/05–01/07. Advanced hyperspectral image classifiers. Regional Gov. València. GV011. PI. 36K€
01/06–12/08. Semi-supervised learning for hyperspectral image classification. Integrated Action Spain-Italy. MEC/HI2005-0228. PI. 22K€
12/08–12/12. Multimodal Interaction in Pattern Recognition and Computer Vision, MIPRCV. Spanish Ministry of Education and Science. CSD2007-00018. PI. 178K€
09/09–09/10. Consolidation of scientific baseline for MTG-IRS L2 processing: role of non-linear regression methods. EUMETSAT. PI. 122K€
05/09–09/09. Normalized interpolation of multisensor images. National Geographic Agency (IGN). PI. 18K€
12/10–12/11. Spectral-temporal image fusion. National Geographic Agency (IGN). PI. 24K€
01/12–01/14. FLEX/S3 Tandem Mission Performance Analysis and Requirements Consolidation Study. 295K€
01/11–01/13. RE-using field reference data in space and time for vegetation mapping: the potential of semi-supervised and active LEARNING techniques. P. Scheunders, G. Camps-Valls (co-PI). 20K€
01/13–12/15. SenSyF: Sentinels Synergy Framework. EU (FP7-Space). J. Moreno, G. Camps-Valls (co-PI). FP7-SPA.2012.1.1-05. 141K€
01/13–12/16. Mapping and the citizen sensor. ICT COST Action. Member of the Management Committee.
01/13–12/15. LIFE-VISION: Learning Image Features to Encode Visual Information. Spanish Ministry of Economy and Competitiveness, 2012. TIN2012-38102-C03-01. PI. 104K€
01/14–12/14. Improvement of the current nonlinear regression retrieval (NLR) implemented within the MTGIRS prototype processor for monitoring (MTGIRS L2 PPM) to generate whole globe profiles of temperature, water vapour and ozone. EUMETSAT. PI. 85K€
01/15–07/15. Study on pattern recognition based cloud detection over landmarks. EUMETSAT. PI. 65K€

- 06/15–06/18. Advances in Machine Learning for Large Scale Remote Sensing Data Processing. MINECO. 80K€
- 06/17–06/20. CLOUDSAT: Cloud Screening of Satellite Images. MINECO. 272K€
- 06/15–06/20. Statistical learning for remote sensing data analysis. ERC consolidator grant. PI. 1,7M€
- 09/20–08/22. ELISE: European Learning And Intelligent Systems Excellence. ICT-48, Universitat de València. 12M€, UV: 230k€
- 01/21–12/23. DeepCube: Explainable AI pipelines for big Copernicus data. EU H2020, 2021-2024 4M€, UV: 450K€
- 01/20–12/23. iMIRACLI: innovative Machine learning to constrain Aerosol-cloud CLimate Impacts. ETN Marie Curie Training Network. 2M€, UV: 250K€
- 06/20–06/22. SCALE: Causal inference in the human-biosphere coupled system (SCALE). Fundación BBVA. 68K€
- 01/21–12/23. DeepCube: Explainable AI pipelines for big Copernicus data. EU H2020, 2021-2024 4M€, UV: 450K€
- 01/21–12/23. DeepExtremes: DeepExtremes: Multi-Hazards, Compounds and Cascade events, G. Camps-Valls, 01/02/22 AI for Science. ESA, 2022-2024 400k€, UV: 90k€
- 01/21–12/23. OpenSR: Robust, accountable super-resolution for Sentinel-2 and beyond. Towards Explainable AI: Application to Trustworthy Super-Resolution, L. Gomez, G. Camps-Valls (coPI) 01/02/22. ESA, 2022-2024 1M€, UV: 300k€
- 09/21–10/25. XAIDA: Extreme AI for Detection and Attribution. EU H2020, 2021-2024 4M€, UV: 350K€
- 09/20–08/26. Understanding and Modeling the Earth System with Machine Learning. ERC Synergy grant. PI (with Eyring, Reichstein and Gentine). 9,89M€, UV: 2.3M€

Technology transfer

- It is a common practice in the group to include software solutions or toolboxes as a delivery product in projects, cf. <http://isp.uv.es/software.html>, and delivered advanced AI methods and tools to ESA, EUMETSAT and NASA as a preparation of future satellite missions.
- Some computational improvements in classification methods for remote sensing have been included in official ESA products, such as BEAM-The ENVISAT-MERIS and AATSR Toolbox, <http://www.brockmann-consult.de/beam/>.
- Coordinator of the ELLIS research program 'Machine Learning for Earth and Climate' to define the European scientific agenda in these topics, and to foster adoption and transfer of AI to industry and society.
- Consultant on data science for the venture capital 'Synóptikos'.
- Advisory committee and consultant of ESA PhiLab on 'AI4Earth'.
- Patent: "Method, apparatus and software for color image compression based on non-linear perceptual representations and machine learning", J Malo, J Gutiérrez, G Camps-Valls, and MJ Luque. 06/20/2008. Ref. P200801943.

Organizing committees and conference reviewer

Technical/Program committee	IGARSS, IWANN, SPIE RSS, IEEE MLSP, IEEE-MULTITEMP, IEEE CISP, ICANN, IEEE WCNC, ICPRAM, ICANN
Session Chair	IEEE IGARSS, IEEE ICIP, IEEE MLSP.
Keynote Speaker	SPIE conference on Remote Sensing 2011, Prague, Czech Rep., NOBIM Norwegian conf on machine learning and pattern recognition.
General Chair	IEEE MLSP 2012. Santander, Spain.
Technical Chair	IEEE IGARSS 2018, València, Spain (2400 attendees)

Editorial activities

- Book ed. "Deep Learning for the Earth Sciences" (Wiley & sons, 2021).
- Book ed. "Digital Signal Processing with Support Vector Machines" (Wiley & sons, 2017).
- Book ed. "Sensing Image Processing" (Morgan & Claypool Publishers, 2011).
- Book ed. "Kernel methods for remote sensing data analysis" (Wiley & sons, 2009)
- Book ed. "Kernel methods in bioengineering, signal and image processing" (IGI, 2007)
- Associate Editor "IEEE Transactions on Signal Processing"
- Associate Editor "IEEE Signal Processing Letters"

- Associate Editor "IEEE Geoscience and Remote Sensing Letters"
- Associate Editor "ISRN Signal Processing Journal"
- Guest Editor "IEEE Journal of Selected Topics in Signal Processing"
- Guest Editor "IEEE Geoscience and Remote Sensing Magazine"
- Guest Editor "Sensing and Imaging (Springer)"

Memberships

- Advisor Com European Science Foundation (ESF) - Space branch (2021–)
- Member Association for Computing Machinery (ACM) (2021–)
- Fellow Member ELLIS (2019–)
- Fellow Member IEEE (2018–)
- Member International Society for Optical Engineers (SPIE) (2018–)
- Senior Member IEEE (2007–)
- Member Association for Computing Machinery (SP) (2021–)
- Advisor Com European Space Agency (ESA) - Φ -Lab (2019–)
- Member American Geophysical Union, AGU (2017–)
- Member European Geosciences Union, AGU (2017–)
- Member Data Fusion Technical Committee of the IEEE Geosc. Rem. Sens. Soc. (2009–)
- Member Machine Learning for Signal Processing Technical Committee of the IEEE-SPS (2009–2014)

Reviewer Activities & Services

- Conferences MLSP, EUSIPCO, ICASSP, IWANN, ICANN, CIP, ICIP, IGARSS, SPIE, ICML, NIPS, ECML, KES, Whispers, Urban, ICPRAM, etc.
- Journals IEEE Transactions on Geoscience and Remote Sensing, IEEE Geoscience and Remote Sensing Letters, IEEE Transactions on Signal Processing, IEEE Signal Processing Letters, IEEE Signal Processing Magazine, IEEE Journal of Selected Topics in Signal Processing, IEEE Transactions on Image Processing, IEEE Transactions on Neural Networks, IEEE Transactions on Pattern Analysis and Machine Intelligence, Journal of Machine Learning Research, Pattern Recognition, Neurocomputing, Remote Sensing of Environment, Machine Learning, Information Fusion, Signal Processing, Journal of the Optical Society of America, Applied Optics, Mathematical Reviews, International Journal of Remote Sensing, PLOS One
- Book Proposals IGI Inc., Springer-Verlag, IOS Press, Wiley & Sons.
- Projects Swiss National Science Foundation (SNSF), Belgian Science Foundation, European Space Agency (ESA), Spanish National Research Programme, Romanian National Council for Research and Development, the Hong Kong Strategic Research funding programme, Finish council, H2020 SPACE, H2020 FET, H2020 Marie Curie, PRIMA, ERC StG and ERC CoG, etc.
- Advisory board Meteosat Third Generation - Infrared Sounder (MTG-IRS) Mission Advisory Group of EUMETSAT (2010–), H2020 projects, Consultant of ESA PhiLab on 'AI4Earth', and Evaluation panel of new research groups in France, Switzerland, Netherlands and Germany.

Awards & Recognitions

- 2021 Highly Cited Researcher in the field of Geosciences
- 2021 Member of the [European Space Sciences Committee](#) of the European Science Foundation
- 2020 InCites TM: 6 papers ranked as Essential Science Indicators and 1 Hot Paper
- 2020 ERC Synergy Grant (ERC-SyG) 2020 (with V. Eyring, M. Reichstein, P. Gentine)
- 2018 Elevation to "IEEE Fellow" (in both GRSS and SPS chapters)
- 2018 InCites: Four papers ranked as [Essential Science Indicators](#)
- 2017 Best Paper Award in IEEE IGARSS 2018 on causal inference with kernels
- 2017 Elevation to "IEEE Distinguished Lecturer" (GRSS chapter)
- 2017 Google classic paper in [Engineering and computer science / Remote sensing](#)
- 2015 Winner of the "2015 IEEE GRSS Data Fusion Contest"
- 2015 ERC Consolidator Grant (ERC-CoG) 2015
- 2014 Best Paper Award in [IEEE Whispers 2014](#).

- 2015 [Winner of the “2015 IEEE GRSS Data Fusion Contest”](#)
- 2013 Best Paper Award of IEEE Geoscience and Remote Sensing Society 2013 and “Editor’s Choice OpenAccess paper”
- 2012 Best Paper Award in the IEEE IGARSS 2012 Student Prize Paper competition (Munich, Germany).
- 2011 Best paper of the IEEE Geoscience and Remote Sensing Society 2011
- 2011 Thomson Reuters Highly Cited Researcher
- 2011 Thomson Reuters ScienceWatch: [Fast Moving Front research](#)
- 2011 Thomson Reuters Essential Science Indicators: most-cited paper in Engineering in 2011
- 2009 2nd Best Paper Student Competition of the Joint Urban Remote Sensing Event 2009 (Shanghai, China)
- 2009 3rd Best Paper Student Competition of the IEEE IGARSS09 (Capetown, South Africa)
- 2009 Best paper award in IEEE MLSP (Grenoble, France)

Publications

More than 235 journal papers and 310 conference papers. Check the full list of publications in [Google Scholar](#), [Publons](#), and [ISP group](#). Below you find the selected ones only, per citations and per journal impact factor.

10 most cited papers, with 500+ citations

1. “Recent advances in techniques for hyperspectral image processing.” A. Plaza, J. A. Benediktsson, J. W. Boardman, J. Brazile, L. Bruzzone, G. Camps-Valls, J. Chanussot, M. Fauvel, P. Gamba, A. Gualtieri, M. Marconcini, J. C. Tilton, G. Trianni. *Rem. Sens. Environ.*, 113, S110-S122, 2009. JIF=5.10, >1500 cites.
2. “Kernel-based methods for hyperspectral image classification.” G. Camps-Valls and L. Bruzzone. *IEEE Trans. Geosc. Rem. Sens.*, 43 (6), 1351-1362, 2005. JIF=3.16, > 1500 cites. Identified by Thomson Reuters ScienceWatch as a Fast Moving Front research.
3. “Hyperspectral remote sensing data analysis and future challenges.” JM Bioucas-Dias, A Plaza, G Camps-Valls, et al. *IEEE Geoscience and Remote Sensing Magazine* 1 (2), 6-36. JIF=3.16, >1400 citations.
4. “Deep learning and process understanding for data-driven Earth System Science”. Reichstein, M. and Camps-Valls, G. and Stevens, B. and Denzler, J. and Carvalhais, N. and Jung, M. and Prabhat. *Nature* 566 :195-204, 2019. JIF=41.6, >1200 citations.
5. “Composite kernels for hyperspectral image classification.” G. Camps-Valls, L. Gomez-Chova, J. Muñoz-Marí, J. Vila-Francés, J. Calpe-Maravilla. *IEEE Geosc. Rem. Sens. Lett.*, 3(1), 93-97. 2006. JIF=1.84, > 1000 citations.
6. “Semi-supervised graph-based hyperspectral image classification.” G. Camps-Valls, T. Bandos Marsheva, D. Zhou. *IEEE Trans. Geosc. Rem. Sens.*, 45 (10), 3044-3054, 2007. JIF=3.16, > 600 citations.
7. “Unsupervised deep feature extraction for remote sensing image classification”. A Romero, C Gatta, G Camps-Valls. *IEEE Transactions on Geoscience and Remote Sensing* 54 (3), 1349-1362. JIF=5.22, > 500 citations.
8. “Advances in hyperspectral image classification: Earth monitoring with statistical learning methods”. G Camps-Valls, D Tuia, L Bruzzone, JA Benediktsson. *IEEE signal processing magazine* 31 (1), 45-54 JIF=11.35, > 500 citations.
9. “Deep learning and process understanding for data-driven Earth System Science”. Reichstein, M. and Camps-Valls, G. and Stevens, B. and Denzler, J. and Carvalhais, N. and Jung, M. and Prabhat. *Nature* 566 :195-204, 2019 JIF=39.33, > 900 citations, Hot paper (300 citations per year).
10. “Global and time-resolved monitoring of crop photosynthesis with chlorophyll fluorescence”. L. Guanter, Y. Zhang, M. Jung, J. Joiner, M. Voigt, J. A. Berry, C. Frankenberg, A. Huete, P. Zarco-Tejada, J-E. Lee, M. S. Moran, G. Ponce-Campos, C. Beer, G. Camps-Valls, N. Buchmann, D. Gianelle, K. Klumpp, A. Cescatti, J. M. Baker, and T. J. Griffis. *Proceedings of the National Academy of Sciences, PNAS*, 2014. JIF=12.11, > 800 citations.

10 top impact factor journal papers

1. “A Unified Vegetation Index for Quantifying the Terrestrial Biosphere”. G. Camps-Valls, M Campos-Taberner, A Moreno-Martínez, S Walther, G Duveiller, A Cescatti, M Mahecha, J Muñoz-Marí, F.J García-Haro, Luis Guanter, John Gamon, Martin Jung, Markus Reichstein, Steven W. Running. *Science Advances*, 2021.
2. “Emergent vulnerability to climate-driven disturbances in European forests”. Forzieri, G. and Girardello, M. and Ceccherini, G. and Spinoni, J. and Feyen, L. and Hartmann, H. and Beck, P.S.A and Camps-Valls, G. and Chirici, G. and Mauri, A. and Cescatti, A. *Nature Communications*, 2021.
3. “Persistence in Complex Systems”. Sancho Salcedo-Sanz, ... and Gustau Camps-Valls *Reviews in Physics*, 2021. JIF=21.6.
4. “Predicting regional coastal sea level changes with a physics-guided machine learning approach”. Veronica Nieves, Cristina Radin, Gustau Camps-Valls et al. *Nature Scientific Reports*, 2021.
5. “Understanding deep learning in land use classification from Sentinel-2 time series”. Campos-Taberner, M. and García-Haro, J. F. and Atzberger, C. and Camps-Valls, G. *Nature Scientific Reports*, 12, 2020.
6. “Deep learning and process understanding for data-driven Earth System Science”. Reichstein, M. and Camps-Valls, G.

- and Stevens, B. and Denzler, J. and Carvalhais, N. and Jung, M. and Prabhat. *Nature* 566 :195-204, 2019.
7. "Compensatory water effects link yearly global land CO2 sink changes to temperature". Jung, M. and Reichstein, M. and Schwalm, C. R. and Huntingford, C. and Sitch, S. and Ahlström, A. and Arneeth, A. and Camps-Valls, G. and Ciais, P. and Friedlingstein, P. et al. *Nature* 541 (7638):516-520, 2017.
 8. "Inferring causation from time series with perspectives in Earth system sciences". Runge, J. and Bathiany, S. and Bollt, E. and Camps-Valls, ... and Zscheischler, J. *Nature Communications* (2553):1-13, 2019.
 9. "Global and time-resolved monitoring of crop photosynthesis with chlorophyll fluorescence". L. Guanter, Y. Zhang, M. Jung, J. Joiner, M. Voigt, J. A. Berry, C. Frankenberg, A. Huete, P. Zarco-Tejada, J-E. Lee, M. S. Moran, G. Ponce-Campos, C. Beer, G. Camps-Valls, N. Buchmann, D. Gianelle, K. Klumpp, A. Cescatti, J. M. Baker, and T. J. Griffis. *Proceedings of the National Academy of Sciences, PNAS*, 2014.
 10. "Multimodal Classification of Remote Sensing Images: A Review and Future Directions". Grémez-Chova, L. and Tuia, D. and Moser, G. and Camps-Valls, G. *Proceedings of the IEEE*, 103 (9):1560-1584, 2015.

Invited talks, lectures and courses

Intl. Tutorials	MLSP-2014, IEEE-Whispers , ESA course , IEEE-IGARSS-2015
Session Chair	IEEE IGARSS 2006-2015, IEEE ICIP 2009, SPIE Remote sensing 2007-2013, MLSP 2009-2012
Keynote Speaker	SPIE conference on Remote Sensing 2011, NOBIM Norwegian conf on machine learning and pattern recognition 2013, SIU-2014 Turkey, CVPR-2015 (workshop on remote sensing), StatLearn'15, ECML'15 (workshop on time series analysis)
General Chair	IEEE MLSP 2012. Santander, Spain
Technical Chair	IEEE IGARSS 2018, València, Spain
IEEE DL	IEEE Distinguished Lecturer, 2017-2019 , involving many talks worldwide in China, India, Germany, Switzerland, Brasil, Canada, ...
Invited talks	More than 50 invited talks at conferences and workshops, http://isp.uv.es/talks.html

PhD Thesis Supervision

I supervised 40+ master students in the last decade and 10 PhD students. Currently (co)advising 18 PhDs.

2009	"Semi-supervised kernel machines in hyperspectral image classification". Tatyana V. Bandos
2010	"Cloud screening algorithm for MERIS and CHRIS satellite sensors". Luis Gómez Chova
2010	"Advances in Hyperspectral Kernel Target Detectors". Luca Capobianco
2011	"Hyperspectral detection of rotten citrus". Juan Gómez Sanchis
2011	"Perceptual and Statistical Image Analysis with Kernels". Valero Laparra Pérez-Muelas
2014	"Kernel Feature Extraction for Remote Sensing Data Analysis". Emma Izquierdo
2015	"Statistical Learning for Image Quality Assessment". Vicent Talens
2016	"Structured kernels for biophysical parameter retrieval". Manuel Campos
2020	"Changes in the coupled Biosphere-Human System". Guido Kraemer
2020	"Integrating Physics Modelling with Machine Learning for Remote Sensing". Daniel Svendsen
2021	"Quantifying information and uncertainty in Earth sciences". Emmanuel Johnson
2021	"Advances in kernel anomaly change detection". J. A. Padrón
2022	"Advances in causal inference for geoscience and remote sensing". Emiliano Diaz
2022	"Spatio-temporal analysis and causal inference of microwave EO data". Diego Bueso
2022	"Advances in machine learning for remote sensing crop yield prediction". Anna Mateo
2023	"Machine learning for sea level variability forecasting and impact assessment". Cristina Radin
2023	"High resolution Products for better quantifying the terrestrial biosphere". Laura Martinez
2023	"Detection of aerosol-cirrus cloud interactions in satellite data". Kai Jeggle
2023	"Detection of aerosol-cloud interactions in observations space". Jessenia Gonzalez Villarreal
2023	"Physics-aware and explainable ML for dust and cloud properties retrieval". Paolo Pelucchi
2023	"Encoding physical priors in deep learning". William Martinez
2023	"Causal inference in the human-biosphere coupled system". Jose Maria Tarraga
2023	"Understanding drivers of forest mortality with deep learning and XAI". Mohit Anand
2023	"Attribution of extreme impacts in European ecosystems with machine learning". Tristan Williams
2023	"Characterization of hybrid machine learning". Kai-Hendrik Cohrs
2024	"Fair learning for detection and attribution". Jordi Cortes

- 2024 "Anomaly and extreme event detection with attention networks". Maria Gonzalez
- 2024 "Drought detection with physics-aware roll-out models". Mengxue Zhang
- 2024 "Bayesian Neural Networks in EO". Spyros Kondylatos
- 2024 "Deep Learning for Fire Danger Forecasting using Earth Observation Data". Ioannis Prapas
- 2024 "Causality in multiresolution domains". Nicolas-Domenic Reiter

In the last 5 years I was member of examination committees for 20 PhD students in Europe (EPFL, Paris Mines, Tromsø, Madrid, Trento, etc). Several of the alumni, visitors and early career scientists established an influential career in various areas of remote sensing data analysis.

Main collaborators

- o Markus Reichstein, MPI Biogeochemistry, Jena, Germany
- o Veronika Eyring, DLR, Germany
- o Pierre Gentine, Columbia University, USA
- o Steve Running, NTSG, Uni Montana, USA
- o Miguel Mahecha, Uni Leipzig, DE
- o Sebastian Sieppel, ETH Zurich, CH
- o Jakob Zscheischler, Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany
- o Jakob Runge, DLR, Germany
- o Devis Tuia, EPFL, CH
- o Diego Miralles, Uni Ghent, Belgium
- o Dino Sejdinovic, Uni Oxford, UK

Major collaborators, organizations, companies and networks in <https://isp.uv.es/collaborators.html>.

Publiometry

- o [Google Scholar](#): $h = 76$, ~27000 cites
- o Main author of the three most cited papers in relevant remote sensing journals.
- o Only spanish researcher awarded with 2 ERC in Computer Science (Panel PE6)
- o [Google Scholar](#) | [Publons](#) | [ORCID](#) | [ResearchGate](#)

Journal papers

- [1] Jordi Cortés-Andrés et al. "Physics-aware Nonparametric Regression Models for Earth Data Analysis". In: (2022). Submitted.
- [2] E Diaz et al. "Inferring causal relations from observational long-term carbon and water fluxes records". In: *Scientific Reports* (2022).
- [3] Lianfa Li et al. "Physics-aware deep graph learning for air quality assessment". In: (2022). Submitted.
- [4] Zhu Li et al. "Kernel Dependence Regularizers and Gaussian Processes with application to Algorithmic Fairness". In: (2022). Submitted.
- [5] J Lia et al. "A hybrid generative adversarial network for weakly-supervised cloud detection in multispectral images". In: (2022). Submitted.
- [6] L Martínez-Ferrer et al. "Quantifying Uncertainty in High Resolution Biophysical Parameter Retrieval with Machine Learning". In: (2022). Submitted.
- [7] J Padron, V Laparra, and G Camps-Valls. "Unsupervised Anomaly and Change Detection with Multivariate Gaussianization". In: *IEEE Transactions on Geoscience and Remote Sensing* 60 (2022), pp. 1–10. DOI: [10.1109/TGRS.2021.3116186](https://doi.org/10.1109/TGRS.2021.3116186).
- [8] C Persello et al. "Deep Learning and Earth Observation to Support the Sustainable Development Goals". In: *IEEE Geoscience and Remote Sensing Magazine* (2022), pp. 2–30. ISSN: 2168-6831. DOI: [10.1109/MGRS.2021.3136100](https://doi.org/10.1109/MGRS.2021.3136100).
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Invited talks

- [1] Gustau Camps-Valls. *A collective agenda for AI on the Earth sciences*. Online talk - ITU-UN AI4Good seminar series, 2022.
- [2] Gustau Camps-Valls. *Advances in Machine Learning for Modelling and Understanding in Earth Sciences*. Online talk, 2021.
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- [0] Spyros Kondylatos. "Bayesian Neural Networks in EO". I. Papotsis and G. Camps-Valls (advisors). TBD 2024.
- [6] Laura Martinez. "High resolution Products for better quantifying the terrestrial biosphere". A. Moreno and G. Camps-Valls (advisors). TBD 2024.
- [7] Paolo Pelucchi. "Physics-aware and explainable ML for dust and cloud properties retrieval". G. Camps-Valls and Philip Stier (advisors). TBD 2024.
- [0] Ioannis Prapas. "Deep Learning for Fire Danger Forecasting using Earth Observation Data". I. Papotsis and G. Camps-Valls (advisors). TBD 2024.
- [8] Cristina Radin. "Machine learning for sea level variability forecasting and impact assessment". V. Nieves and G. Camps-Valls (advisors). TBD 2024.
- [0] Jose Maria Tarraga. "Causal inference in the human-biosphere coupled system". M. Piles and G. Camps-Valls (advisors). TBD 2024.
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- [10] Jessenia Gonzalez Villarreal. "Detection of aerosol-cloud interactions in observations space". Johannes Quaas and G. Camps-Valls (advisors). TBD 2024.
- [11] Tristan Williams. "Attribution of extreme impacts in European ecosystems with machine learning". G. Camps-Valls and M. Mahecha (advisors). TBD 2024.
- [12] Mengxue Zhang. "Physics-Aware Deep Learning Models for Drought Monitor and Prediction Based on Multi-Source Observational Data". G. Camps-Valls and (advisors). TBD 2024.
- [13] Diego Bueso. "Spatio-temporal analysis and causal inference of microwave EO data". Universitat de València, Spain.
- [14] Emiliano Diaz. "Advances in causal inference for geoscience and remote sensing". Universitat de València, Spain.
- [15] William Martínez. "Encoding physical priors in deep learning". Universitat de València, Spain.
- [16] Anna Mateo. "Advances in machine learning for remote sensing crop yield prediction". Universitat de València, Spain.

Master Theses

- [1] Juan Palao Barceló. *Detección de perturbaciones en la cubierta terrestre vegetal mediante análisis y segmentación espectro-temporal*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2020.
- [2] Fernando L Rodríguez Brizuela. *Estimación de parámetros biofísicos de cultivos de arroz mediante procesos gaussianos utilizando imágenes de radar de apertura sintética*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2020.
- [3] Miguel Morata Dolz. *Evaluación del impacto del clima sobre la vegetación mediante causalidad de Granger no lineal*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2020.
- [4] Cristina Radin. *Decadal, regional sea level assessment using advanced statistical techniques*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2020.

- [5] José María Tárraga. *Estudio del impacto del clima en las migraciones humanas mediante aprendizaje estadístico*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2020.
- [6] Laura Martínez Ferrer. *Estimación de la producción de cultivos a través de la fusión de MODIS y SMAP mediante algoritmos de regresión*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2019.
- [7] Laura Almendra Martin. *Análisis del impacto de ENSO y NAO en variables climáticas esenciales y en la ocurrencia de eventos extremos*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2018.
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- [9] Rafael Llorens Company. *Relación entre la humedad del suelo y el riesgo de incendios en el continente europeo*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2017.
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- [11] Adrià Descals Ferrando. *Parameter estimation by hyperspectral and LiDAR data fusion*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2016.
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- [13] J R Chire Chira. *Detección de cambios multi-sensor ante un evento sísmico*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2014.
- [14] Manuel Campos-Taberner. *Evaluación de Procesos Gaussianos en la estimación de parámetros biofísicos*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2013.
- [15] Saúl Ramos Peredo. *Spectral Unmixing Techniques for Mineral Mapping with Hyperspectral Imagery*. Universitat de València, Spain: Master in Remote Sensing, Universitat de València, Spain, 2013.
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