



Pablo M. Sánchez Alarcón

GALAXY EVOLUTION · DATA SCIENCE · OBSERVATIONAL ASTRONOMY

NPP fellow at NASA Ames, California

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Summary

PhD in astrophysics, specialised in observational astronomy, focusing on galaxy evolution and advanced data analysis of astronomical images. I have three first-author publications on observational methods and data science, and contributed as a co-author to 10 additional papers. PI of an HST proposal of Cycle 32. With over 8 years of experience in Python, I have developed custom image analysis tools and methods using big data, machine learning and statistical methods. I am building a GPU-accelerated pipeline for generating background-subtracted, science-ready mosaics for telescopes and designing an automated pipeline to extract and classify surface brightness profiles using *Euclid* images of thousands of galaxies. Expertise with *Spitzer*, *Hubble*, *Euclid*, and *Roman* space telescope observations, and infrared and optical ground-based astronomy. Currently working as a NASA Postdoctoral Fellow at NASA Ames, California, working on subtraction of galactic cirrus on Roman Space Telescope using machine learning.

Research Interests:

- 👁️ **Low Surface Brightness Universe:** Dwarf galaxies, UDGs, extended discs, and tidal structures.
- 👁️ **Observational Astronomy:** Data analysis techniques, image calibration, and analysis.
- 👁️ **Globular Cluster Populations** in dwarf galaxies and UDGs. Nuclear Star Cluster formation.
- 👁️ **Data Science, ML & AI:** Parallel/GPU software, transformers, neural networks, and Bayesian deep learning.

Current Position

NASA Ames Research Center

California, USA

POSTDOCTORAL FELLOW

Jan. 2026 - today

Selected for the [NASA Postdoctoral Program](#) fellowship (NPP) to lead research on **Low Surface Brightness (LSB)** science using data from *Euclid* and *Roman* space telescopes. Developing novel **Artificial Intelligence** and **Machine Learning** frameworks to detect and characterize faint galactic structures and **galactic cirrus** in deep Roman space imaging. Optimizing image analysis pipelines to handle high-volume data streams from next-generation wide-field surveys.

Education

Instituto de Astrofísica de Canarias & Universidad de la Laguna

Tenerife, Spain

PH.D. IN ASTROPHYSICS

GALAXY EVOLUTION AND DISC STRUCTURE THROUGH DEEP SURFACE PHOTOMETRY.

Supervisor: Dr. Johan Knapen and **Co-supervisors:** Dr. Javier Román and Dr. Sébastien Comerón.

Sept. 2021 - August 2025

- I have exploited state-of-the-art deep imaging from different telescopes and surveys. The project aims to statistically characterise the properties of surface brightness profile breaks in disk galaxies. I have found a statistically significant difference between the type of breaks in isolated galaxies (from a sample of deep observations of AMIGA galaxies) compared to galaxies in both the field and clusters (see [paper](#)). I have led the analysis of the disc galaxy extension of the Spitzer Survey of Stellar Structure in Galaxies (S⁴G) project. We present the Complete S⁴G (CS⁴G), a complete sample of 3239 nearby galaxies, with top-quality deep red or infrared images (see [paper](#)). I am currently working on studying the evolution of the disc breaks with redshift using the Q1 of *Euclid*.
- As a part of my thesis, I participated in several training activities, such as doctoral schools, congress and seminars. I have also been on the IAC's seminars committee for three years.
- **Grant:** FPI-2020
- **Defence Date:** 29 of July 2025. Graduated with the highest mark, **Cum Laude** distinction, and international mention.

Universidad Autónoma de Madrid & Instituto de Física Teórica

Madrid, Spain

M.Sc. IN THEORETICAL PHYSICS, SPECIALIZATION IN ASTROPHYSICS AND PHYSICS OF THE COSMOS, TOTAL 60 ECTS,

GRADE 8.95/10. TAUGHT IN ENGLISH.

With honours at the M. Sc. Thesis and Galaxy Formation and Evolution.

Sept. 2019 - July. 2020

- **M.Sc. Thesis (Grade 10/10) FABADA: Fully Adaptive Bayesian Algorithm for Data Analysis:** Novel noise reduction method, specifically for astronomical data in 1D and 2D. Implemented in **Python** and published in **RASTI**.
Supervisor: Dr. Yago Ascasibar Sequeiros.
- **Grant:** Beca Fondo Social U. Autónoma de Madrid

Universidad Autónoma de Madrid

Madrid, Spain

B.Sc. IN PHYSICS, TOTAL 240 ECTS, GRADE 6.8/10.

With honours at the B. Sc. Thesis (Grade 9.5/10)

Sept. 2014 - July. 2019

- **Grant:** Ministerio de Educación y Formación Profesional (MEC)

I have published 3 first authors' papers in refereed journals, participated as co-author in 10 articles, and published one proceeding. A completed list of all publications I have been involved can be found in this [ADS Library](#)

AS FIRST AUTHOR:

- 👁️ **Sánchez-Alarcón, P. M.**, Salo, H., Knapen, J. H., Comerón, S., Román, J., Watkins, A. E., Buta, R. J., Laine, S., Falcón-Ramrez, J. M., Anetjärvi, M., Athanassoula, E., Bosma, A., Gadotti, D. A., Hinz, J. L., Ho, L. C., Holwerda, B. W., Janz, J., Kim, T., Koda, J., . . . Zaritsky, D. (2025). The Complete Spitzer Survey of Stellar Structure in Galaxies (CS4G). *A&A* 697 A38. DOI: [10.1051/0004-6361/202451641](https://doi.org/10.1051/0004-6361/202451641).
- 👁️ **Sánchez-Alarcón, P. M.**, Román, J., Knapen, J. H., Verdes-Montenegro, L., Comerón, S., Rich, R. M., Beckman, J. E., Argudo-Fernández, M., Ramírez-Moreta, P., Blasco, J., Unda-Sanzana, E., Garrido, J., & Sánchez-Exposito, S. (2023). The AMIGA sample of isolated galaxies. XIV. Disc breaks and interactions through ultra-deep optical imaging. *A&A*, 677. DOI: [10.1051/0004-6361/202346719](https://doi.org/10.1051/0004-6361/202346719)
- 👁️ **Sánchez-Alarcón, P. M.**, & Ascasibar, Y. (2023b). Fully adaptive Bayesian algorithm for data analysis: FABADA. *RAS Techniques and Instruments*, 2 (1). DOI: [10.1093/rasti/rzad006](https://doi.org/10.1093/rasti/rzad006)

AS CO-AUTHOR:

- 👁️ Román, J., **Sánchez-Alarcón, P. M.**, Knapen, J. H., & Peletier, R. (2023). Evidence for globular cluster collapse after a dwarf-dwarf merger: A potential nuclear star cluster in formation. *A&A*, 671. DOI: [10.1051/0004-6361/202345928](https://doi.org/10.1051/0004-6361/202345928)
Contribution: Helping with the analysis of the data and interpreting the findings. Contributing to writing and editing the manuscript. This research led to the HST and WEAVE observation proposal being accepted as PI.
- 👁️ Annibali, F., Ferguson, A. M. N., **Sanchez-Alarcon, P. M.**, et al. (2026). Euclid: Early Release Observations – The extended stellar component of the IC10 dwarf galaxy. Accepted for publication in *Astronomy and Astrophysics*, 10.48550/arXiv. 2601.11997
Contribution: Surface brightness analysis of the data, leading the morphological decomposition, contributing to the writing and revision of the manuscript.
- 👁️ Urbano, M., Duc, P.-A., Poulain, M. (including **Sánchez-Alarcón, P. M.**). Euclid preparation LXXIX. Using mock low surface brightness dwarf galaxies to probe Euclid Wide Survey detection capabilities. Accepted for publication in *Astronomy and Astrophysics*. DOI: [10.1051/0004-6361/202557270](https://doi.org/10.1051/0004-6361/202557270)
Contribution: Analysis of the surface photometry and techniques: contributing to the revision of the manuscript.
- 👁️ Mondelin, M., Bournaud, F., Cuillandre, J. C., (including **Sánchez-Alarcón, P. M.**) et al. 2025. *Euclid*: Early Release Observations – The surface brightness and colour profiles of the far outskirts of galaxies in the Perseus cluster. *A&A*, 689, A213. DOI: [10.1051/0004-6361/202554838](https://doi.org/10.1051/0004-6361/202554838)
Contribution: Member of the consortium. Contributing to the discussion of the analysis, techniques used, and review of the manuscript.
- 👁️ Perez, I., Gil, L., Ferre-Mateu, A., Torres-Rios, G., (including **Sánchez-Alarcón, P. M.**) et al., (2025). Galaxy mass-size segregation in the cosmic web from the CAVITY parent sample. *A&A*, 695. DOI: [10.1051/0004-6361/202452514](https://doi.org/10.1051/0004-6361/202452514)
Contribution: Helping with the analysis of the results and suggesting the methods and techniques to follow. Interpreting the findings from my expertise in disc outskirts. Contributing to the review of the manuscript.
- 👁️ Garca-Benito, R., Jiménez, A., Sánchez-Menguiano, L., Ruiz-Lara, T., (including **Sánchez-Alarcón, P. M.**) et al. (2024). CAVITY: Calar Alto Void Integral-field Treasury survey: I. First public data release. *A&A*, 691. DOI: [10.1051/0004-6361/202451400](https://doi.org/10.1051/0004-6361/202451400)
Contribution: Helping with the observations of the data. Contributing to the review of the manuscript.
- 👁️ McCall, C., Jermak, H. E., Steele, I. A., Kobayashi, S., Knapen, J. H., & **Sánchez-Alarcón, P. M.** (2024). Detection of an intranight optical hard lag with colour variability in blazar PKS 0735+178. *MNRAS*, 528 (3). DOI: [10.1093/mnras/stae310](https://doi.org/10.1093/mnras/stae310)
Contribution: Helping with the observations of the data. Contributing to the reduction of the data and review of the manuscript.
- 👁️ Pérez, I., Verley, S., Sánchez-Menguiano, L., Ruiz-Lara, T., (including **Sánchez-Alarcón, P. M.**) et al. (2024). CAVITY, Calar Alto Void Integral-field Treasury survey and project extension. *A&A*. DOI: [10.1051/0004-6361/202449749](https://doi.org/10.1051/0004-6361/202449749)
Contribution: I am an active member of the collaboration. I conducted over 30 observation nights for the deep imaging data. I contributed by analysing deep images, interpreting findings, and writing and reviewing the manuscript.
- 👁️ Sánchez, S. F., Garca-Benito, R., González Delgado, R., Conrado, A., (including **Sánchez-Alarcón, P. M.**) et al. (2024). The CAVITY Project: Spatially-Resolved and Characteristic Properties of Galaxies Derived Using pyPipe3D. *Rev. Mexicana Astron. Astrofis.*, 60, 323–341. DOI: [2024RMxAA..60..323S](https://doi.org/10.1017/2024RMxAA..60..323S)
Contribution: Contributing to review the manuscript.
- 👁️ Román, J., Rich, R. M., Ahvazi, N., Sales, L. (including **Sánchez-Alarcón, P. M.**) et al. (2023). A giant thin stellar stream in the Coma Galaxy Cluster. *A&A*, 679 arXiv 2305.03073, A157. DOI: [10.1051/0004-6361/202346780](https://doi.org/10.1051/0004-6361/202346780)
Contribution: Contributing to the analysis of the data. Discussion of methods, techniques and findings. Contributing to the review of the manuscript.

PROCEEDINGS:

- 👁️ **Sánchez-Alarcón, P. M.**, & Ascasibar, Y. (2023c). Fully Adaptive Bayesian Algorithm for Data Analysis. *FABADA*. In M. Manteiga, L. et al. (Eds.), *Highlights of Spanish Astrophysics XI*, Proceedings of the XV Scientific Meeting of the Spanish Astronomical Society. ISBN: [978-84-09-50197-7](https://doi.org/10.1017/9788409501977)

Accepted Proposals as PI

- 👁️ **William Herschel Telescope:** Three observing blocks (3h) with the LIFU of the WEAVE instrument at the 4.2 m William Herschel Telescope during semester 2025B.
- 👁️ **Hubble Space Telescope Cycle 32:** Two orbits with the ACS@WFC at the *Hubble* Space Telescope. Phase II is accepted and expected to be observed in February 2026. The proposal can be found [here](#). This proposal is accompanied by a grant of \$53k.
- 👁️ **Isaac Newton Telescope:** Five nights with the Wide Field Camera (WFC) at the 2.54 m Isaac Newton Telescope during semester 2024A.
- 👁️ **William Herschel Telescope:** Five observing blocks (5h) with the LIFU of the WEAVE instrument at the 4.2 m William Herschel Telescope during semester 2023B.
- 👁️ **SARA red of telescopes:** 46 hours with the SARA red of 1 m telescopes during semester 2023B. Seven nights with the Cerro Tololo 1 m telescopes and three nights with the Jacobus Kapteyn Telescope at Roque de los Muchachos.

Scientific Meetings

Galaxy Memoirs

Búzios, Brazil

INFERRING THEIR PAST FROM THEIR PRESENT

August 10th to 15th of 2025.

- **Contributed talk:** Pablo M. Sánchez-Alarcón “Unveiling Disk Break Evolution in Galaxies with Euclid”.

Euclid from Q1 to DR1

Tenerife, Spain

JOINT LOCAL UNIVERSE, GALAXY EVOLUTION AND PRIMEVAL UNIVERSE SCIENCE WORKING GROUPS MEETING

January 27th to 31st of 2025.

- **Contributed talk:** Pablo M. Sánchez-Alarcón, Javier Román, Johan H. Knapen, Sébastien Comerón, Marc Huertas-Company. “Evolution of disc breaks as seen by Euclid”.

LSST@Europe 6

La Palma, Spain

LSST AND INSTITUTO DE ASTROFÍSICA DE CANARIAS

September 16th to 20th of 2024.

- Member of the [Local Organising Committee \(LOC\)](#).
- **Contributed talk:** Pablo M. Sánchez-Alarcón, Johan H. Knapen, Heikki Salo, Sébastien Comerón, Javier Román, Aaron Watkins. “Complete Spitzer Survey of Stellar Structure in Galaxies (CS⁴G): Disc galaxy extension and surface brightness profiles”.

XXXIIst IAU General Assembly

Cape Town, South Africa

INTERNATIONAL ASTRONOMICAL UNION

August 6th to 15th of 2024.

- **Contributed talk:** Pablo M. Sánchez-Alarcón, Johan H. Knapen, Heikki Salo, Sébastien Comerón, Javier Román, Aaron Watkins. “Complete Spitzer Survey of Stellar Structure in Galaxies (CS⁴G): Disc galaxy extension and surface brightness profiles”. ID:2469

3rd annual meeting of the CAVITY project

Granada, Spain

CAVITY, U. DE GRANADA

June 19th to 20th of 2023.

- **Contributed talk:** Pablo M. Sánchez-Alarcón, Javier Román. “INT data campaigns and surface brightness profiles”

XV Reunión Científica de la Sociedad Española de Astronomía

Tenerife, Spain

SOCIEDAD ESPAÑOLA DE ASTRONOMÍA, SEA

September 5th to 9th of 2022.

- **Contributed talk:** Sánchez-Alarcón, P.M., and Ascasibar, Y. “Fully Adaptive Bayesian Algorithm for Data Analysis. FABADA”
- **Contributed e-poster talk:** Sánchez-Alarcón, P.M., Román J., Knapen J. H., Verdes-Montenegro L, and Comerón S. “Disk breaks as evidence for past star formation in the radial profiles of isolated galaxies”.

XXXIst IAU General Assembly

Busan, Korea

INTERNATIONAL ASTRONOMICAL UNION, IAU. PARTICIPATED ONLINE.

August 2nd to 11th of 2022.

- **Contributed e-poster:** Sánchez-Alarcón, P.M., Román J., Knapen J. H., and Verdes-Montenegro L. “Disk breaks as evidence for past star formation in the radial profiles of isolated galaxies”.
- **Contributed e-poster:** Sánchez-Alarcón, P.M., and Ascasibar, Y. “Fully Adaptive Bayesian Algorithm for Data Analysis. FABADA”.

European Astronomical Society Annual Meeting

Valencia, Spain

EUROPEAN ASTRONOMICAL SOCIETY, EAS

June 27th to July 1st of 2022.

- **Contributed e-poster talk:** Sánchez-Alarcón, P.M., Román J., Knapen J. H., and Verdes-Montenegro L. “Tidal streams and disk breaks in the radial profiles of isolated galaxies”.
- **Contributed e-poster talk.** Sánchez-Alarcón, P.M., and Ascasibar, Y. “Fully Adaptive Bayesian Algorithm for Data Analysis. FABADA”.

Research travels

Observatoire Astronomique de Strasbourg

Strasbourg, France

RESEARCH COLLABORATION

Data Analysis towards galaxy evolution using *Euclid* imaging

Supervisor: Dr. Pierre-Alain Duc

30 March 2023 - 1 May 2025

- During my PhD, I spent one month at the Strasbourg Observatory collaborating with Dr. Pierre-Alain Duc on developing low-surface-brightness techniques for *Euclid* imaging. This work was instrumental in completing my automated pipeline for studying galaxy outskirts, including producing extended masks, extraction of surface-brightness profiles, photometric and structural measurements, and morphological modelling.
- **Grant:** ExGal-Twin

RESEARCH COLLABORATION

The Complete Spitzer Survey of Stellar Structure in Galaxies (CS⁴G).

Supervisor: Dr. Heikki Salo.

March 2023 - April 2023, December 2024.

- The main objective of the collaboration was focused on the S⁴G survey (*Spitzer* Survey of Stellar Structure in Galaxies). I helped to complete the main reduction and analysis of the last observational data of the survey. For this purpose, I reduced new data, analysed images, and made surface brightness profiles and morphological decomposition. I came to Oulu for one week in December 2024 to revise all the images and tables before being published.
- **Grant:** Erasmus+ 2022

Observational Experience

Over **50** nights in professional telescopes, **60** nights with my amateur telescope and **20** nights in public observation events.

June, 2024	Observations at INT , Seven nights at the Observatorio Roque de los Muchachos with the 2.54 m Isaac Newton telescope with the Wield Field Camera. These were the last nights of the WFC instrument.	ORM, La Palma, Spain.
April, 2024	Observations at INT , Nine nights at the Observatorio Roque de los Muchachos with the 2.54 m Isaac Newton telescope with the Wield Field Camera.	ORM, La Palma, Spain.
Oct 2024	Remote Observations at ORM , Three nights of remote observations with the 1.0 m Jacobus Kapteyn Telescope at Roque de los Muchachos.	CT, Chile, Remote.
Nov 2023	Remote Observations at GBT , Six hours of remote observations with the VEGAS instrument at the 100 m Green Bank Telescope.	West Virginia, US, Remote.
Sep, Nov 2023	Remote Observations at CT , Seven nights of remote observations with the SARA 1.0 m telescope in Cerro Tololo.	CT, Chile, Remote.
Jan, 2023	Observations at INT , Two nights at the Observatorio Roque de los Muchachos with the 2.54 m Isaac Newton telescope with the Wield Field Camera.	ORM, La Palma, Spain.
Jan, 2023	Observations at Carlos Sánchez , Two nights at the Observatorio del Teide with the 1.52 m Carlos Sánchez telescope with MusCAT2 instrument.	ORM, La Palma, Spain.
Dec, 2022	Observations at INT , Four nights at the Observatorio Roque de los Muchachos with the 2.54 m Isaac Newton telescope with the Wield Field Camera.	ORM, La Palma, Spain.
Nov, 2022	Observations at INT , Three nights at the Observatorio Roque de los Muchachos with the 2.54 m Isaac Newton telescope with the Wield Field Camera.	ORM, La Palma, Spain.
Apr, 2022	Observations at INT , Eight nights at the Observatorio Roque de los Muchachos with the 2.54 m Isaac Newton telescope with the Wield Field Camera.	ORM, La Palma, Spain.
2020	Observation at CAHA , Two nights observation at the Centro Astronómico Hispano Alemán with the 2.2 m telescope and the CAFOS instrument.	CAHA, Almería, Spain.
2019	ESAC Summer Solstice Star Party , participant with my own equipment.	Madrid, Spain.
2019	Observation at CAHA , Two nights observation at the Centro Astronómico Hispano Alemán with the 2.2 m telescope and the CAFOS instrument.	CAHA, Almería, Spain.
2018/19	Public Observations , Principle telescope operator for public observations at the Observatory of the UAM. (10 sessions of 3 hours). Mounted and operated the telescopes Celestron C11, APO 0.107 m and Telescopio Jeronimo Muñoz (TJM, a 0.51 m reflector).	Madrid, Spain.

Schools and Courses

I participated in:

Accurate Flux Calibration in the Era of Space Astronomy and All-Sky Surveys

SPACE TELESCOPE SCIENCE INSTITUTE (STScI)

Online

October 22nd to 25th 2024

Summer School in Astrominformatics II

CENTER FOR ASTROSTATISTICS AT THE PENNSYLVANIA STATE UNIVERSITY

Online

June 13th to 17th 2022

Summer School in Astrostatistics

CENTER FOR ASTROSTATISTICS AT THE PENNSYLVANIA STATE UNIVERSITY

Online

June 6th to 10th 2022

IAA-CSIC Severo Ochoa Advanced School on Galaxy Evolution

INSTITUTO DE ASTROFÍSICA DE ANDALUCÍA, IAA

Granada, Spain

May 23th to 27th 2022

DAWN Winter School

THE COSMIC DAWN CENTER (DAWN)

Online

February 7th to 11th 2022

2nd IAA-CSIC Severo Ochoa School on Statistics, Data Mining, and Machine Learning

INSTITUTO DE ASTROFÍSICA DE ANDALUCÍA, IAA

Granada, Spain

November 29th to December 3rd 2021

IAA Severo Ochoa Advanced School on Star Formation

INSTITUTO DE ASTROFÍSICA DE ANDALUCÍA, IAA

Granada, Spain

November 15th to 19th 2021

XV SVO School

SPANISH VIRTUAL OBSERVATORY

Madrid, Spain

Feb. 2020




- One day course about the SVO tools. We learned how to use ALADIN, TOPCAT, STILTS, VOSA also with ADQL and TAP protocols.

The Stellar Streams

ASTROPHOTOGRAPHY & SCIENCE COMMUNICATION PROJECT

Madrid, Spain

2017 - Today

- In 2017 my colleague Alejandro Romar and I created this group to build a complete astrophotography equipment. Since then we have captured hundreds of images, participated in outreach events and collaborated on scientific projects.
- **Updated Equipment:** TS PHOTOLINE 80mm F/6 Crayford telescope; Sky Watcher EQ6-R mount; ZWO ASI183MM-Pro CMOS; ZWO Filter Wheel with LRGB and H α , H β , [SII] and [OIII]; EZG-80 Lunatico's Tube and ZWO ASI290MM Mini for the guide system. Pegasus Pocket Powerbox Micro. Everything is controlled with a Raspberry Pi 5 and K-Stars.
- You can find more information and some of our images on our social media (click any icon , , ).

Machine Learning Specialization

UNIVERSITY OF WASHINGTON

Coursera, Online

Sep. 2020

In total 4 different blocks covering: Machine Learning A case study approach, Regression, Classification and Clustering & Retrieval.

Grafiás Assosiation

CO-FOUNDER & ACTIVE MEMBER

Madrid, Spain

2017-2019

- Drafting of statutes. Divulagation at schools and U. Autónoma de Madrid. Astrophotography courses. Public astronomical observations.

Antares Assosiation

ACTIVE MEMBER

Madrid, Spain

2015-2017

- Administrative and Financial Management. Poster and Logo Design. Photography courses.

Scientific Activities

INVITED TALKS:

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|------|---|---------------------|
| 2025 | Scientific talk , at the Observatório do Valongo in Rio de Janeiro. | Brasil. |
| 2025 | Scientific lecture , about automated image analysis at the "EDUCADO" observing school. | La Palma, Spain. |
| 2025 | Scientific Seminar , at the Strasbourg Observatory. | Strasbourg, France |
| 2025 | Scientific talk , at the "EDUCADO" mid-term meeting. | La Palma, Spain. |
| 2024 | Scientific talk , at the University of the Witwatersrand. | Johannesburg, S. A. |
| 2023 | Scientific talk , at the "Celebrating John Beckman's 60 years in Astrophysics" meeting at the IAC. | Tenerife, Spain. |
| 2023 | Scientific Seminar , at the University of Oulu | Oulu, Finland. |

SERVICES:

- | | | |
|---------|--|----------------|
| 2024 | Referee , Referee for one paper for the Journal Astrophysics & Space Science | SpringerNature |
| 2022-24 | Seminars Committee , Member of the Seminars Committee at the IAC for 3 years. | IAC |

TEACHING ACTIVITY:

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|------|--|--------------------------------------|
| 2026 | M.Sc. Thesis , Co-supervised with Dr. Javier Roman. Studying galaxy halos in dwarf galaxies using deep GTC imaging. Matías Salah. | Astronomy - VIU |
| 2026 | M.Sc. Thesis , Supervised M.Sc. on Classification of surface brightness profile types using Machine Learning. With <u>honors mention</u> and <u>second position</u> of M.Sc. prizes. Marta Sánchez. | Big data, data science, and AI - UCM |
| 2022 | B.Sc. Thesis , Co-supervised B.Sc. thesis with Dr. Yago Ascasibar about PSF deconvolution and Noise reduction techniques: Adaptive Wiener Filter. Carlos Gil-Igual. | Astrophysics - UAM |
| 2022 | B.Sc. Thesis , Co-supervised B.Sc. thesis with Dr. Yago Ascasibar about Sky background subtraction and signal detection. Pablo Jimenez Sánchez. | Astrophysics - UAM |

OUTREACH ACTIVITY:

- | | | |
|---------|---|----------------|
| 2024 | Invited Public Seminar , 45 min public seminar under the program "Amigos del IAC" in Spanish. Video here | Online |
| 2019 | Astrophotography Workshop , In charge of 3 sessions of 1 h talks about astrophotography at the IV Jornadas Astronómicas UAM. Explaining the basics of astrophotography along with the instrumentation. | Madrid, Spain. |
| 2018-19 | Observational support , Assisting with over 20 public observation nights at the astronomical observatory of the Universidad Autónoma de Madrid. | Madrid, Spain. |
| 2015 | Universal Fun Facts Speaker , One hour talk at the biology building of the faculty of sciences as a member of the Antares Association of the UAM. | Madrid, Spain. |

Work Experience

ALASUN SOLAR S.L.

Madrid, Spain

ADVISOR AND TECHNICAL SUPPORT.

Feb. 2019 - Sept. 2021

- Responsible for the maintenance of a 40 kW_p photovoltaic installation with solar tracking. This installation consists of 8 modules of 5 kW_p each, with solar tracking based on two engines, one for the azimuth and the other for the altitude.
- Responsible for the upgrade of the solar tracking. I was responsible for the software and hardware development and its module installation.
- Assistant for the development of new projects. Some tasks are reviewing reports, drafting plans with SketchUp and Layout and reviewing the electric systems.

Astronomical Observatory of the U. Autónoma de Madrid

Madrid, Spain

INTERNSHIP FOR DATA ANALYSIS

Oct. 2018 - Jan. 2019

- Responsible for the development of a new data reduction pipeline for Astronomical images based in Python. This new pipeline calibrates and stacks the images obtained with the ZWO ASI1600MM Pro CMOS of the UAM Observatory.
- Helping with scientific outreach in the public astronomical observations being the main telescope operator.
- Assistant in the recovery and maintenance of the Jerónimo Muñoz Telescope (TJM), such as cleaning/moving the main mirror, changing the engines, recovering the software and coupling the guide system.
- Acquiring images for the Observatory survey. This survey is then used by students in the bachelor's and master's degrees to test their software.

Honors & Awards

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|------|---|---------------|
| 2020 | With honors , M.Sc Thesis, FABADA, Fully Adaptive Bayesian Algorithm for Data Analysis | Madrid, Spain |
| 2019 | 1st position , Astrophotography Contest IV Jornadas Astronomicas, U. Autónoma de Madrid | Madrid, Spain |
| 2019 | Admitted , Program for the Promotion of Knowledge Transfer 2019, U. Autónoma de Madrid | Madrid, Spain |
| 2019 | With honors , B. Sc. Thesis about Data Analysis | Madrid, Spain |
| 2019 | With honors , B. Sc. Thesis about Astrophysics | Madrid, Spain |

Skills

PROGRAMMING LANGUAGES

Advanced Skills Python, Linux, SQL, Shell

Basic Skills C/C++, R, Matlab/Octave, JavaScript.

SOFTWARE

Advanced Skills \LaTeX , SExtractor, SWarp, SCamp, PSFEx, GNUastro, Topcat, Astropy, DATALABS, PixInsight, Photoshop, Microsoft Office

Intermediate Skills Streamlit, OpenMP, CUDA, Numba, ALADIN, ESASky, IRAF

Basic Skills MPI, MongoDB, TensorFlow, STILTS, Grafana, TuriCreate, Poetry

LANGUAGES

Native tongue Spanish

Advanced English (IELTS score 7.5 (C1 level))

SOFT SKILLS

High attention to detail, fast learner, creative skills, design thinking and natural problem solver.