Pablo M. **Sánchez Alarcón**

Galaxy Evolution · Data Science · Observational Astronomy

Ph.D. in Astrophysics, Instituto de Astrofisica de Canarias, Tenerife, Spain

(+34) 677 42 57 58 | pmsa.astro@gmail.com | TheStellarStreams | PabloMSanAla

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 8 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. Currently, 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*, and *Euclid* space telescope observations, and infrared and optical ground-based astronomy.

Research Interests

- Low Surface Brightness Universe. Dwarf galaxies, Ultra Diffuse Galaxies (UDGs), extended discs, and tidal structures.
- Studying the Globular Cluster population in dwarf galaxies and UDGs. Nuclear Star Cluster formation.
- Observational astronomy and data analysis techniques. Image calibration and analysis.
- Data Science, machine learning and artificial intelligence. Parallel and GPU-based software. Statistical tools, supervised and unsupervised algorithms, neural networks, and Bayesian deep learning.

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 (S^4G) project. We present the Complete S^4G (CS^4G), 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
- Graduate with the highest mark and **Cum Laude** distinction

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:*** I developed a new noise reduction method, specifically for astronomical data in 1D and 2D. I implemented a fully functional version in Python and can be found `here`. A paper was published out of this work (see `here`).
  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)

Refereed Publications | Pablo M. Sánchez Alarcón

I have published 3 first authors' papers in refereed journals, participated as co-authors in 8 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.**, Román J., Knapen J. H., Comerón S., et al. 2025. Evolution of disc breaks with *Euclid*. In prep. It is expected to be published at the end of 2025 with the special issue of *Euclid* Q1 in A&A. An updated draft can be found **here**.
- **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. 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., Ramirez-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
- **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

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

  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.

- 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

  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

  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

  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

  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

  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

  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

  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. Bellot, P. Benavidez, A. de Lorenzo-Cáceres, M. A. Fuente, M. J. Martnez, M. Vázquez Acosta, & C. Dafonte (Eds.), *Highlights of Spanish Astrophysics XI*, Proceedings of the XV Scientific Meeting of the Spanish Astronomical Society held on September 4–9, 2022, in La Laguna, Spain. ISBN: 978-84-09-50197-7

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 amount 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
Búzois, 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 (CS^4G): 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 (CS^4G): 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

University of Oulu *Oulu, Finland*

Research Collaboration

The Complete Spitzer Survey of Stellar Structure in Galaxies (CS^4G).

Supervisor: Dr. Heikki Salo. *March 2023 - April 2023, December 2024.*

- The main objective of the collaboration was focused on the S^4G 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 *Online*

Space Telescope Science Institute (STScI) *October 22nd to 25th 2024*

Summer School in Astroinformatics II *Online*

Center for Astrostatistics at The Pennsylvania State University *June 13th to 17th 2022*

Summer School in Astrostatistics *Online*

Center for Astrostatistics at The Pennsylvania State University *June 6th to 10th 2022*

IAA-CSIC Severo Ochoa Advanced School on Galaxy Evolution *Granada, Spain*

Instituto de Astrofísica de Andalucía, IAA *May 23th to 27th 2022*

DAWN Winter School — *Online*

The Cosmic Dawn Center (DAWN) — *Februrary 7th to 11th 2022*

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

Instituto de Astrofísica de Andalucía, IAA — *November 29th to December 3rd 2021*

IAA Severo Ochoa Advanced School on Star Formation — *Granada, Spain*

Instituto de Astrofísica de Andalucía, IAA — *November 15th to 19th 2021*

XV SVO School — *Madrid, Spain*

Spanish Virtual Observatory — *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 — *Madrid, Spain*

Astrophotography & Science Communication project — *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 — *Coursera, Online*

University of Washington — *Sep. 2020*

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

Grafías Assosiation — *Madrid, Spain*

Co-founder & Active member — *2017-2019*

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

Antares Assosiation — *Madrid, Spain*

Active member — *2015-2017*

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

Scientific Activities

Invited talks:

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:

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.	*U. Autónoma de Madrid*
2022	**B.Sc. Thesis**, Co-supervised B.Sc. thesis with Dr Yago Ascasibar about Sky background subtraction and signal detection. Pablo Jimenez Sánchez.	*U. Autónoma de Madrid*

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 Assosiation 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

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.

Research Experience

- Solid background in optical and IR observational techniques and analysis.
- Solid background in statistics and Bayesian inference.
- Experience analysing large databases of astronomical observations (e.g. S^4G, Gaia DR2) with different tools (e.g. TOPCAT, ALADIN, VOSA)
- Experience analysing and calibrating astronomical images and spectra (e.g. IRAC, CAFOS, WFC3, FOS, WFC@INT, SARA, WEAVE, NTT) with different tools (e.g. SWarp, SExtractor, GNUastro, Astropy, IRAF)
- Experience in the acquisition of astronomical images and spectra either with professional instrumentation (CAFOS, WFC@INT, SARA) and with amateur instrumentation (ZWO ASI183MM-Pro CMOS and ALPY 600 Spectrograph)
- Expertise with Spitzer, Hubble, and Euclid space telescope observations and reduction of their imaging products.
- Experience in writing scientific publications.
- Experience analysing numerical models and visualising model outputs (e.g. Gadget 2, Cloudy, FoF, DIPSO)