

Andre M. Silva

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Ciencia ID: 2416-D5A6-DFA5

Short bio

Education

2019–2024 **Doctor's Degree in Astronomy**, *Programa doutoral em Astronomia*, Faculdade de Ciências da Universidade do Porto

Thesis title: *A new paradigm for the estimation of precise stellar radial velocities.*

2019–2024 **M.Sc. Degree**, *Physics Engineering*, Faculdade de Ciências da Universidade do Porto

Thesis title: *An expansion to the CHEOPS mission official pipeline.*

Experience

Aug 2024–now **Post-doctoral researcher**, *FCiências.ID*, Faculdade de Ciências da Universidade de Lisboa

Developing software for the PoET telescope, funded by the *FIERCE* ERC project, with grant number 101052347

Feb–Sept 2024 **Invited assistant**, *Departamento de Física e Astronomia*, Faculdade de Ciências da Universidade do Porto

Invited assistant to teach the practical classes during 1 semester.

Jul–Sep 2017 **Summer Internship**, *Follow Inspiration*, Porto

Development of software for analysing number of people in the field of view of the cameras mounted on their robots.

Feb–Jun 2017 **Extra curricular Internship (PEEC)**, *IFIMUP*, Faculdade de Ciências da Universidade do Porto

Development of software to collect and analyse data from triboelectric materials. The delivered software allowed manual and fully autonomous data acquisition, as well as an integrated tool to process the data.

Feb–Jun 2016 **Extra curricular Internship (PEEC)**, *IFIMUP*, Faculdade de Ciências da Universidade do Porto

Expanded a device used to test *triboelectric* materials. A new device was designed, tested and built during the course of the project. Afterwards, the device was used on some test runs, showing nominal functioning.

Teaching experience

- Feb - Aug 24 **Teaching the practical classes of the course *Data Analysis in Physics and Astronomy AST/FIS4002*, department of Physics and Astronomy from the Faculty of Sciences, U. Porto**
- Mar 23 **Organizor/instructor in a internal python course for astronomers, Centro de Astrofísica e Ciências do Espaço, U. Porto**
- Mar 22 **Organizor/instructor in a internal python course for astronomers, Centro de Astrofísica e Ciências do Espaço, U. Porto**
- Mar 21 **Organizor/instructor in a internal python course for astronomers, Centro de Astrofísica e Ciências do Espaço, U. Porto**

Grants

- Aug 2024–now **Post-doctoral fellowship**, *Software development for the PoET telescope, funded by the FIERCE ERC project, grant number 101052347, Faculdade de Ciências da Universidade de Lisboa*
- Feb 2023 **FLAD grant**, *Fund travel to the EPRV V conference in Santa Bárbara, California, PAPERS 4 USA, reference 2023/052*
- 2021–2024 **PhD fellowship**, *Fundação para a Ciência e Tecnologia (FCT): "A new paradigm for the estimation of precise stellar radial velocities: towards the development of an innovative data analysis software", Ref: 2020.05387.BD*
- Nov - Dec 2019 **Research fellowship**, *Field of Planetary Systems at Instituto de Astrofísica e Ciências do Espaço, Ref: IA2019-17-BIM*
- Apr - Sept 2019 **Scientific Initiation Studenship**, *Field of Computacional Astrophysics at Instituto de Astrofísica e Ciências do Espaço, Ref: CIAAUP-11/x019-BIC*

Talks

Conferences

- 18 Jul 2023 **Approaches for RV extraction: s-BART and the first steps towards a fully Bayesian model**, *TOE-III, Porto, Portugal*
- 28 Mar 2023 **Towards a fully Bayesian RV extraction model**, *EPRV5, Santa Bárbara, California*
- 09 Feb 2023 **sBART application to the ESPRESSO WG1 targets**, *ESPRESSO science team meeting, Lanzarote, Canary islands*
- 03 May 2022 **s-BART: a semi-Bayesian implementation of template matching for precise Radial Velocities**, *Exoplanets IV, EPRV splinter, Online*
- 11 Nov 2021 **A new paradigm for the estimation of precise stellar radial velocities: towards the development of an innovative data analysis software**, *IA-ON8, Online*

Seminars

- Mar 2024 **The (radial) velocity of stars - detection and characterisation of exoplanets**, *Café com Física*, Departamento de Física da Universidade de Coimbra
- May 2024 **Towards an improvement in the characterisation of stellar radial velocities**, *ESA research seminar*, European Space Agency (Madrid)

Supervision

Undergraduate projects

- Nov 22 - Feb 23 **Co-supervisor of the undergraduate project of Pedro Afonso**, *A new activity proxy for finding other Earths*, U. Porto
- Feb - Jun 20 **Co-supervisor of the undergraduate project of Mafalda Matos**, *An analysis of the performance of CHEOPS mission pipelines: the DRP and archi*, U. Porto

Other projects

- Mar - Jul 24 **Co-supervisor of the Research Initiation Fellowship (BII) of Diogo Marques (ref CIAAUP-03/2023-BII)**, *Development of a tool for the normalization of stellar spectra: application to ESPRESSO data*, CAUP
- Feb - Jul 24 **Co-supervisor of the extra-curricular project (PEEC) of João Cunha**, *Exoplanet detection through a new model for the correction of instrumental effects*, U. Porto
- Feb - Jul 24 **Co-supervisor of the extra-curricular project (PEEC) of Carla Henriques**, *Development of a GUI interface for the exploitation of data from the s-BART pipeline*, U. Porto
- Feb - Jul 24 **Co-supervisor of the extra-curricular project (PEEC) of Martim Paiva**, *Solar-to-sky coordinate conversion for PoET operations*, U. Porto

Research outputs

First-author Papers

- 2 André M. Silva et al, 2022 - 'A Novel Framework for Semi-Bayesian Radial Velocities through Template Matching', *Astronomy & Astrophysics* (DOI: 10.1051/0004-6361/202142262)
- 1 André M. Silva et al, 2020 - 'Archi: Pipeline for Light Curve Extraction of CHEOPS Background Stars', *Monthly Notices of the Royal Astronomical Society* (DOI: 10.1093/mnras/staa1443)

Co-authored Papers

- 12 Suárez Mascareño et al, 2024 - 'TESS and ESPRESSO Discover a Super-Earth and a Mini-Neptune Orbiting the K-dwarf TOI-238', *Astronomy & Astrophysics* (DOI: 10.1051/0004-6361/202348958)
- 11 Palethorpe et al, 2024 - 'Confronting Compositional Confusion through the Characterisation of the Sub-Neptune Orbiting HD 77946', *Monthly Notices of the Royal Astronomical Society* (DOI: 10.1093/mnras/stae000)

10.1093/mnras/stae707)

- 10 Campante et al, 2024 - 'Expanding the Frontiers of Cool-Dwarf Asteroseismology with ESPRESSO: Detection of Solar-like Oscillations in the K5 Dwarf ϵ Indi', Astronomy & Astrophysics ([DOI: 10.1051/0004-6361/202449197](#))
- 9 De Beurs et al, 2024 - 'Characterization of K2-167 b and CALM, a New Stellar Activity Mitigation Method', Monthly Notices of the Royal Astronomical Society ([DOI: 10.1093/mnras/stae207](#))
- 8 Passegger et al, 2024 - 'The Compact Multi-Planet System GJ 9827 Revisited with ESPRESSO', Astronomy & Astrophysics ([DOI: 10.1051/0004-6361/202348592](#))
- 7 Castro-González et al, 2023 - 'An Unusually Low-Density Super-Earth Transiting the Bright Early-Type M-dwarf GJ 1018 (TOI-244)', Astronomy & Astrophysics ([DOI: 10.1051/0004-6361/202346550](#))
- 6 Balsalobre-Ruza et al, 2023 - 'KOBESim: A Bayesian Observing Strategy Algorithm for Planet Detection in Radial Velocity Blind-Search Surveys', Astronomy & Astrophysics ([DOI: 10.1051/0004-6361/202243938](#))
- 5 Mascareño et al, 2023 - 'Two Temperate Earth-mass Planets Orbiting the Nearby Star GJ1002', Astronomy & Astrophysics ([DOI: 10.1051/0004-6361/202244991](#))
- 4 Allart et al, 2022 - 'Automatic Model-Based Telluric Correction for the ESPRESSO Data Reduction Software: Model Description and Application to Radial Velocity Computation', Astronomy & Astrophysics ([DOI: 10.1051/0004-6361/202243629](#))
- 3 Lillo-Box et al, 2022 - 'The KOBE Experiment: K-dwarfs Orbited By Habitable Exoplanets: Project Goals, Target Selection, and Stellar Characterization', Astronomy & Astrophysics ([DOI: 10.1051/0004-6361/202243898](#))
- 2 Faria et al, 2022 - 'A Candidate Short-Period Sub-Earth Orbiting Proxima Centauri', Astronomy & Astrophysics ([DOI: 10.1051/0004-6361/202142337](#))
- 1 Lillo-Box et al, 2021 - 'HD22496b: The First ESPRESSO Standalone Planet Discovery', Astronomy & Astrophysics ([DOI: 10.1051/0004-6361/202141714](#))

Posters

- 7 'The Paranal solar ESPRESSO Telescope - towards a resolved view of the Sun', Leiden, Exoplanets 5, 2024-06-16/2024-06-21
- 6 'A fully-Bayesian model for RV extraction', Leiden, Exoplanets 5, 2024-06-16/2024-06-21
- 5 'A Bayesian template matching approach applied to HARPS : towards the improvement of the RV precision', Online, European Astronomical Society Annual meeting 2021, 2021-06-28/2021-07-02
- 4 'A semi-Bayesian implementation of template matching for precise Radial Velocities', Online,

Statistical challenges in Modern astronomy VII, 2021-07-07/2021-07-10

3 'A semi-Bayesian implementation of template matching for precise Radial Velocities', Online, Encontro Ciência 21, 2021-07-28/2021-07-30

2 'A Bayesian approach to precise Radial Velocities', Online, 30th Encontro Nacional de Astronomia e Astrofísica , 2020-09-09/2020-09-11

1 'ARCHI: pipeline for light curve extraction of CHEOPS background stars', Online, Europlanet Science Congress 2020, 2020-06-21/2020-07-09

Outreach

Aug 23 **Night sky guide**, *Observatório do Lago Alqueva, Portugal*

2023 **Talk – Ignite session: À procura por outra Terra** , *Torres Vedras; Ílhavo, Portugal*

2023 **Talk – Espaço vai à Escola 23 - Descoberta de outra Terra - deteção de planetas fora do sistema solar**, *Online, 5 schools; In person: 5 schools, Portugal*

2022 **Talk – Espaço vai à Escola 22 - Descoberta de outra Terra - deteção de planetas fora do sistema solar**; *Online, 3 schools, Portugal*

Miscellaneous Experience

Organizing committees

2024 , *Part of the local organization committee of the EPRV6 conference, Porto, Portugal*

2019 **LoC**, *Part of the local organization committee of the Porto MW-Gaia WG3 Workshop: Exoplanets in the era of Gaia, Porto, Portugal*