André M. Silva

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Ciencia ID: 2416-D5A6-DFA5

Education

2019 - Jul. 2024 — **Doctor's Degree in Astronomy** at the "Faculdade de Ciências da Universidade do Porto"
Thesis title: *A new paradigm for the estimation of precise stellar radial velocities.*

2014–2019 — **M.Sc. Physics Engineering** at the "Faculdade de Ciências da Universidade do Porto"
Thesis title: *An expansion to the CHEOPS mission official pipeline.*

Employment History

2024 - now — **Lecturer,** Faculdade de Ciências da Universidade do Porto (FCUP)
Invited assistant to teach the practical classes during 1 semester.

Talks

Conferences

TOE-III — Approaches for RV extraction: s-BART and the first steps towards a fully Bayesian model – Jul. 18, 2023, Porto, Portugal

EPRV5 — Towards a fully Bayesian RV extraction model – Mar. 28, 2023, Santa Bárbara, California

ESPRESSO GTO — sBART application to the ESPRESSO WG1 targets – Feb. 2023, ESPRESSO science team meeting, Lanzarote, Canary islands

Exoplanets IV — s-BART: a semi-Bayesian implementation of template matching for precise Radial Velocities – May 3, 2022, EPRV splinter, Online

IA-ON8 — A new paradigm for the estimation of precise stellar radial velocities: towards the development of an innovative data analysis software – Nov. 11, 2021, Online

Seminars

2024 — The (radial) velocity of stars - detection and characterisation of exoplanets – Mar. 2024, Café com Física – Departamento de Física da Universidade de Coimbra

Towards an improvement in the characterisation of stellar radial velocities – May 2024, ESA research seminar – European Space Agency (Madrid)

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/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

Supervision

Undergraduate projects

Nov. 2022–Feb. 2023 — Co-supervisor of the undergraduate project of Pedro Afonso – A new activity proxy for finding other Earths – U. Porto

Feb.–Jun. 2020 — 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

Feb. 2024 - now — 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

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

Co-supervisor of the *extra-curricular* project (PEEC) of Martim Paiva – Solar-to-sky coordinate conversion for PoET operations – U. Porto

Mar.–Jun. 2023 — 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 – U. Porto

Teaching experience

Feb. 2024 - now — Teaching the practical classes of the course *Data Analysis in Physics and Astronomy* AST/FIS4002 at the department of Physics and Astronomy from the Faculty of Sciences from the University of Porto

Mar. 2024 — Organizor/instructor in a internal python course for astronomers organized by the "Centro de Astrofísica e Ciências do Espaço"

Teaching experience (continued)

Mar. 2023 — Organizor/instructor in a internal python course for astronomers organized by the "Centro de Astrofísica e Ciências do Espaço"

Apr.–May 2021 — Organizor/instructor in a internal python course for astronomers organized by the "Centro de Astrofísica e Ciências do Espaço"

Outreach

Aug. 2023 — Night sky guide on Observatório do Lago Alqueva

2023 — Talk –Ignite session: À procura por outra Terra - Torres Vedras; Ílhavo

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

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

Miscellaneous Experience

Organizing committees

2024 — Part of the local organization committee of the *EPRV6* conference

2019 — Part of the local organization committe of the *Porto MW-Gaia WG3 Workshop: Exoplanets in the era of Gaia.*

Grants

2023 — FLAD grant (PAPERS 4 USA, reference 2023/052) to fund travel to the EPRV V conference in Santa Bárbara, California.

Jan. 2021 - now — PhD fellowship from 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 in the field of Planetary Systems at Instituto de Astrofísica e Ciências do Espaço (IA). Ref: IA2019-17-BIM – Nov - Dec 2019

Apr.–Sep. 2019 — Scientific Initiation Studenship in the field of Computacional Astrophysics at the Instituto de Astrofísica e Ciências do Espaço (IA). Ref: CIAAUP-11/x019-BIC