André M. Silva

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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.

Feb.–Aug. 2017 — **Extra curricular Internship (PEEC),** *IFIMUP*
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.

Jul.–Sep. 2017 — **Summer Internship,** *Follow Inspiration*
Development of software for analysing number of people in the field of view of the cameras mounted on their robots.

Feb.–Aug. 2016 — **Extra curricular Internship (PEEC),** *IFIMUP*
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

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

Talks (continued)

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

Supervision (continued)

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"

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.

Miscellaneous Experience (continued)

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