

André M. Silva

📍 CAUP, Rua das Estrelas, 4150-762 Porto, Portugal

✉ Andre.Silva@astro.up.pt

📞 0000-0003-4920-738X

🌐 Kamuish

Short Bio

I am André Silva, a postdoctoral researcher at the Instituto de Astrofísica e Ciências do Espaço. My research spans instrumentation and exoplanetary science. I am currently working on the PoET solar telescope, leading the development of its observation software. In parallel, I focus on the development of novel algorithms for precise radial velocity extraction and analyze systematic effects that impact such measurements. Over the past three years, I have lectured an advanced course on Python, a Master's-level course on Bayesian statistics, and a PhD-level module on high-resolution spectroscopy.

Education

PhD	Faculdade de Ciências , Doctor's Degree in Astronomy <ul style="list-style-type: none">Thesis - A new paradigm for the estimation of precise stellar radial velocities	Universidade do Porto 2019 – 2024
MSc	Faculdade de Ciências , Mestrado Integrado em Engenharia Física <ul style="list-style-type: none">Thesis - An expansion to the CHEOPS mission official pipeline.	Universidade do Porto 2014 – 2019

Awards

IAU PhD Prize 2024 🔗 , Division B	2025
<ul style="list-style-type: none">Awarded the PhD Prize 2024 from the International Astronomical Union (IAU) Division B (Facilities, Technologies, and Data Science) for the work developed during my PhD thesis.	

Experience

Instituto de Astrofísica e Ciências do Espaço , Post-doctoral researcher <ul style="list-style-type: none">Development of the observational software for the PoET solar telescope.	CAUP Nov 2024 – present
Faculdade Ciências da Universidade do Porto , Invited Assistant Professor <ul style="list-style-type: none">Invited assistant to teach a PhD-level unit on high-resolution spectroscopy	Physics department Nov 2024 – present
Faculdade de Ciências da Universidade de Lisboa , Post-doctoral researcher <ul style="list-style-type: none">Development of software to measure day-time seeing, under the FIERCE ERC project	FCiências.ID Aug 2024 – Nov 2024
Faculdade Ciências da Universidade do Porto , Invited assistant <ul style="list-style-type: none">Invited assistant for the practical classes of MSc-level unit on Bayesian data analysis.	Physics department Feb 2024 – Sept 2024
Instituto de Astrofísica e Ciências do Espaço , PhD fellow <ul style="list-style-type: none">FCT funding for the PhD thesis "A new paradigm for the estimation of precise stellar radial velocities"	Physics department 2019 – July 2024

Talks

EPRV6 🔗 , A systematic bias in template-based RV extraction algorithms	July 2025
Planets throughout the Habitable Zone 🔗 , A systematic bias in template-based RV extraction algorithms	June 2025
PoET workshop 2 🔗 , 2 talks: PoET observation software; Observing strategies and their role in the improvement of RV analysis	Nov 2024
TOI III 🔗 , Approaches for RV extraction – s-BART and the first steps towards a fully Bayesian model	July 2023
EPRV 5 🔗 , Towards a fully Bayesian RV extraction model	Mar 2023

Exoplanets 4 EPRV splinter , sBART application to the ESPRESSO WG1 targets	Feb 2023
ESPRESSO science team meeting , s BART a semi Bayesian implementation of template matching for precise Radial Velocities	May 2022

Seminars

Astronomical Institute of the Czech Academy of Sciences , Avenues and challenges for radial velocity extraction – s-BART & PoET	Aug 2025
Astronomy department, Uni. of Geneva , Avenues for radial velocity extraction – s-BART & PoET	Jan 2025
ESA research seminar, European Space Agency (Madrid) , Towards an improvement in the characterisation of stellar radial velocities	May 2024
Café com Física ☞ Departamento de Física da Universidade de Coimbra , The (radial) velocity of stars - detection and characterisation of exoplanets	Mar 2024

Supervision

Transforming H-alpha images of the Sun in astronomical seeing for the PoET solar telescope , Supervisor	Undergraduate project Feb 2025 – July 2025
Looking at the Sun, finding other Earths - Identification of Solar Regions , Co-supervisor	MsC thesis Oct 22 - Nov 23
Development of a GUI interface for the exploitation of data from the s-BART pipeline , Co-supervisor	Undergraduate project Feb 2024 – July 2024
Solar-to-sky coordinate conversion for PoET operations , Co-supervisor	Undergraduate project Feb 2024 – July 2024
Exoplanet detection through a new model for the correction of instrumental effects , Co-supervisor	Undergraduate project Feb 2024 – July 2024
Development of a tool for the normalization of stellar spectra - application to ESPRESSO data , Co-supervisor of BII project with ref CIAAUP-03/2023-BII ☞	Funded project Feb 2024 – July 2024
A new activity proxy for finding other Earths , Co-supervisor	Bachelors project Nov 2022 – Feb 2023
An analysis of the performance of CHEOPS mission pipelines - the DRP and archi , Co-supervisor	Bachelors project Feb 2020 – June 2020

First Author Publications

A systematic bias in template-based radial velocity extraction algorithms André M. Silva et al; (A&A, 10.1051/0004-6361/202554955 ☞)	2025
A novel framework for semi-Bayesian radial velocities through template matching André M. Silva et al; (A&A, 10.1051/0004-6361/202142262 ☞)	2022
archi: pipeline for light curve extraction of CHEOPS background stars André M. Silva et al; (Monthly Notices of the Royal Astronomical Society, 10.1093/mnras/staa1443 ☞)	2020

Co-authored Publications

PoET: the Paranal solar ESPRESSO Telescope Santos et al; (Published in The Messenger vol. 194, 10.18727/0722-6691/5381 ☞)	2025
TOI-512: Super-Earth transiting a K-type star discovered by TESS and ESPRESSO Rodrigues et al; (A&A, 10.1051/0004-6361/202452887 ☞)	2025

TESS and HARPS-N unveil two planets transiting TOI-1453: A super-Earth and one of the lowest mass sub-Neptunes	2025
Stalport et al; (A&A, 10.1051/0004-6361/202452969)	
A Planet Candidate Orbiting near the Hot Jupiter TOI-2818 b Inferred through Transit Timing	2025
McKee et al; (ApJ, 10.3847/1538-4357/adac63)	
Revisiting the multi-planetary system of the nearby star HD 20794: Confirmation of a low-mass planet in the habitable zone of a nearby G-dwarf	2025
Nari et al; (A&A, 10.1051/0004-6361/202451769)	
A sub-Earth-mass planet orbiting Barnard's star: No evidence of transits in TESS photometry	2025
Stefanov et al; (A&A, 10.1051/0004-6361/202452450)	
KOBE-1: The first planetary system from the KOBE survey: Two planets likely residing in the sub-Neptune mass regime around a late K-dwarf	2025
Balsalobre-Ruza et al; (A&A, 10.1051/0004-6361/202452631)	
Characterization of K2-167 b and CALM, a new stellar activity mitigation method	2024
De Beurs et al; (Monthly Notices of the Royal Astronomical Society, 10.1093/mnras/stae207)	
Expanding the frontiers of cool-dwarf asteroseismology with ESPRESSO: Detection of solar-like oscillations in the K5 dwarf ϵ Indi	2024
Campante et al; (A&A, 10.1051/0004-6361/202449197)	
TESS and ESPRESSO discover a super-Earth and a mini-Neptune orbiting the K-dwarf TOI-238	2024
Suárez Mascareño et al; (A&A, 10.1051/0004-6361/202348958)	
Confronting compositional confusion through the characterisation of the sub-Neptune orbiting HD 77946	2024
Palethorpe et al; (Monthly Notices of the Royal Astronomical Society, 10.1093/mnras/stae707)	
The compact multi-planet system GJ 9827 revisited with ESPRESSO	2024
Passegger et al; (A&A, 10.1051/0004-6361/202348592)	
Implementation of a seeing measurement device for the PoET solar telescope	2024
Wehbé et al; (Proc. SPIE , 10.1117/12.3017481)	
PoET, the Paranal solar ESPRESSO Telescope: a spatially resolved Sun in a high resolution spectrograph	2024
Leite et al; (Proc. SPIE , 10.1117/12.3016776)	
ESPRESSO reveals blueshifted neutral iron emission lines on the dayside of WASP-76 b	2024
Costa Silva et al; (A&A, 10.1051/0004-6361/202449935)	
A sub-Earth-mass planet orbiting Barnard's star	2024
González Hernández et al; (A&A, 10.1051/0004-6361/202451311)	
Two temperate Earth-mass planets orbiting the nearby star GJ1002	2023
Mascareño et al; (A&A, 10.1051/0004-6361/202244991)	
An unusually low-density super-Earth transiting the bright early-type M-dwarf GJ 1018 (TOI-244)	2023
Castro-González et al; (A&A, 10.1051/0004-6361/202346550)	
KOBESim: A Bayesian observing strategy algorithm for planet detection in radial velocity blind-search surveys	2023

Balsalobre-Ruza et al; (A&A, [10.1051/0004-6361/202243938](https://doi.org/10.1051/0004-6361/202243938) [↗](#))

Automatic model-based telluric correction for the ESPRESSO data reduction software: Model description and application to radial velocity computation 2022

Allart et al; (A&A, [10.1051/0004-6361/202243629](https://doi.org/10.1051/0004-6361/202243629) [↗](#))

A candidate short-period sub-Earth orbiting Proxima Centauri 2022

Faria et al; (A&A, [10.1051/0004-6361/202142337](https://doi.org/10.1051/0004-6361/202142337) [↗](#))

The KOBE experiment: K-dwarfs Orbiting By habitable Exoplanets: Project goals, target selection, and stellar characterization 2022

Lillo-Box et al; (A&A, [10.1051/0004-6361/202243898](https://doi.org/10.1051/0004-6361/202243898) [↗](#))

HD22496b: the first ESPRESSO standalone planet discovery 2021

Lillo-Box et al; (A&A, [10.1051/0004-6361/202141714](https://doi.org/10.1051/0004-6361/202141714) [↗](#))

Posters

The Paranal solar ESPRESSO Telescope - towards a resolved view of the Sun 2024

André M. Silva et al, Leiden, Exoplanets 5

A fully-Bayesian model for RV extraction 2024

André M. Silva et al, Leiden, Exoplanets 5

A Bayesian template matching approach applied to HARPS : towards the improvement of the RV precision 2021

André M. Silva et al, Online, European Astronomical Society Annual meeting 2021

A semi-Bayesian implementation of template matching for precise Radial Velocities 2021

André M. Silva et al, Online, Statistical challenges in Modern astronomy VII

A semi-Bayesian implementation of template matching for precise Radial Velocities 2021

André M. Silva et al, Online, Encontro Ciência 21

ARCHI: pipeline for light curve extraction of CHEOPS background stars 2020

André M. Silva et al, Online, Europlanet Science Congress 2020

A Bayesian approach to precise Radial Velocities 2020

André M. Silva et al, Online, 30th Encontro Nacional de Astronomia e Astrofísica

Grants

Post-doctoral fellowship Aug-Nov 2024

Software development for the PoET telescope, funded by the FIERCE ERC project, grant number 101052347, Faculdade de Ciências da Universidade de Lisboa

PhD fellowship, Fundação para a Ciência e Tecnologia (FCT) 2021-2024

"A new paradigm for the estimation of precise stellar radial velocities - towards the development of an innovative data analysis software", Ref. 2020.05387.BD

FLAD grant 2023

Fund travel to the EPRV V conference in Santa Bárbara, California, PAPERS 4 USA, Ref. 2023/052

Research fellowship Nov-Dec 2019

field of Planetary Systems at Instituto de Astrofísica e Ciências do Espaço, Ref. IA2019-17-BIM

Scientific Initiation Studentship Apr-Sep 2019

field of Computacional Astrophysics at Instituto de Astrofísica e Ciências do Espaço, Ref. IA2019-04-BIC

Organization

Co-organizer of PoET's Working Group 1 - Radial velocities 2025

SoC of Dias da Física 2025	2025
Part of the Local Organization committee of EPRV6	2025

Outreach

Ignite sessions; ‘ Torres Vedras Ílhavo Armamar ’	2023-2024
Outreach talks to highschool students: Espaço vai à Escola - Descoberta de outra Terra - deteção de planetas fora do sistema solar	2022-2024
2022 (3 talks); 2023 (5 online; 5 in-person); 2024 (6 online; 4 in-person)	