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Education

- 2026 – Now **Ph.D. Physics, University of Mississippi** in Oxford, MS, USA.
Supervised by Prof. Leo C. Stein.
- 2022 – 2025 **M.Sc. Engineering Physics, Instituto Superior Técnico** in Lisbon, Portugal.
Supervised by Dr. Alex Vaño-Viñuales and Prof. Edgar Gasperin Garcia.
- 2019 – 2022 **BSc. Engineering Physics, Instituto Superior Técnico** in Lisbon, Portugal.
Final Project: *A Mathematical Study of Compressible Fluid Flow in One Dimension.*
- 2019 **Course on Elements of Artificial Intelligence, University of Helsinki.**

Employment History

- 2025 **Full-time Researcher, BlackHole2024, Instituto de Telecomunicações.**
- 2024 **Electromagnetism Teaching Assistant, Instituto Superior Técnico.**
- Physics I Teaching Assistant, Instituto Superior Técnico.**
- Astronomical Guide, Astronomical Observatory of the Alqueva Lake.**
- 2023 **Science Communicator, European Parliament.**
- 2022 **New Talents in Physics, researcher at Gulbenkian Foundation.**
- 2019 – 2022 **Associate Investigator, Center of Physics of the Universities of Minho and Porto.**

Research Publications

Journal Articles

- 1 J. D. Álvares and A. Vaño-Viñuales, “Free hyperboloidal evolution of the einstein–maxwell–klein–gordon system,” *Classical and Quantum Gravity*, vol. 42, no. 15, p. 155018, Jul. 2025. DOI: [10.1088/1361-6382/adf0b9](https://doi.org/10.1088/1361-6382/adf0b9).
- 2 J. D. Álvares and A. Vaño-Viñuales, “Charged scalar field at future null infinity via nonlinear hyperboloidal evolution,” *Physical Review D*, vol. 112, no. 10, p. 104053, Nov. 2025, Publisher: American Physical Society. DOI: [10.1103/w94x-d6j8](https://doi.org/10.1103/w94x-d6j8). (visited on 01/14/2026).
- 3 J. D. Álvares, J. A. Font, F. F. Freitas, *et al.*, “Exploring gravitational-wave detection and parameter inference using Deep Learning methods,” *Classical and Quantum Gravity*, vol. 38, no. 15, p. 155010, Aug. 2021, arXiv:2011.10425 [gr-qc], ISSN: 0264-9381, 1361-6382. DOI: [10.1088/1361-6382/ac0455](https://doi.org/10.1088/1361-6382/ac0455).

Unpublished

- 1 J. D. Álvares and E. Gasperin, *Hyperboloidal slices close to spatial and null infinity in flat spacetime*.

Editorial Positions

- 2025 Reviewer at *Classical and Quantum Gravity*

Skills

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| Languages | ■ Strong reading, writing and speaking competencies in Portuguese, English and Russian.
A2 in Arabic and Mandarin Chinese. Good understanding of Spanish, French, Ukrainian and Belorussian. |
| Coding | ■ C, C++, Python, Mathematica, CUDA, Fortran, Julia, L ^A T _E X, ... |
| NR Codes | ■ Interacted with SpEC, GyOTO, GRChombo and bamps. |
| Web Dev | ■ HTML, CSS, JavaScript. |
| Misc. | ■ Enthusiast, Science Communicator, Graphic Designer, Writer, Painter. |

Seminars

- Oct 2025 ■ **CIDMA Seminar**, Aveiro, Portugal. Title: "Electrically Charged Hyperboloidal Slices".

Conferences, Workshops & Schools

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| Dec 2025 | ■ XVIII Black Holes Workshop , Lisbon, Portugal. Speaker. |
| Sep 2025 | ■ Spanish and Portuguese Relativity Meeting , Alicante, Spain. Speaker. |
| July 2025 | ■ NR Community Call , Online. Speaker. |
| Dec 2024 | ■ XVII Black Holes Workshop , Aveiro, Portugal. Speaker. |
| July 2024 | ■ Spanish and Portuguese Relativity Meeting , Coimbra, Portugal. Speaker. |
| June 2024 | ■ 2nd Virtual Infinity Workshop , Online. Speaker. |
| Sep 2021 | ■ 10th CENTRA Summer School On Astrophysics and Gravitation , Lisbon, Portugal. |
| June 2021 | ■ 11th Iberian Gravitational Waves Meeting , Valencia, Spain. |
| July 2019 | ■ CIÊNCIA'19 , Lisbon, Portugal. Speaker. |
| Aug 2017 | ■ Western International Shanghai School Invited Speaker , Shanghai, China. Speaker. |

Awards and Achievements

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| Dec 2025 | ■ 2nd Best Thesis in Astrophysics and Gravitation Award , Instituto Superior Técnico. |
| May 2025 | ■ Teaching Excellence Award , Instituto Superior Técnico. |
| May 2024 | ■ International University Physics Olympiads - PLANCKS , Dublin, Ireland. |
| Feb 2024 | ■ 1st Place National University Physics Olympiads , University of Lisbon. |
| May 2023 | ■ International University Physics Olympiads - PLANCKS , Milano, Italy. |
| Feb 2023 | ■ 1st Place National University Physics Olympiads , University of Aveiro. |
| 2021 – 2022 | ■ Academic Merit Diploma , Instituto Superior Técnico. |
| 2020 – 2021 | ■ Academic Merit Diploma , Instituto Superior Técnico. |
| May 2021 | ■ American Statistical Association Special Award In Statistics , Online, USA. |
| | ■ Regeneron International Science and Engineering Fair 2021 , Online, USA. |
| Feb 2021 | ■ Amélia de Mello Foundation and Bondalti's Scholarship , Instituto Superior Técnico. |
| June 2020 | ■ 4th Place National Science Fair , Online, Portugal. |
| May 2020 | ■ XXIII Iberoamerican University Mathematics Olympiads 4th National Place , Online, Portugal. |
| | ■ Regeneron International Science and Engineering Fair 2020 , Online, USA. |

Awards and Achievements (continued)

- March 2020 ■ **1st Place Poster Contest VI Jornadas da Engenharia Física**, Instituto Superior Técnico.
- Feb 2020 ■ **Amélia de Mello Foundation and Bondalti's Scholarship**, Instituto Superior Técnico.
- August 2019 ■ **International Olympiads on Astronomy and Astrophysics**, Keszthely, Hungary.
- June 2019 ■ **1st Place National Science Fair**, Porto, Portugal.
■ **Finalist FCT Nova Challenge**, Almada, Portugal.
- March 2019 ■ **2nd Place National Astronomy Olympiads**, Coimbra, Portugal.
■ **1st Place BLCS Poetry Contest**, Braga, Portugal.
- Feb 2019 ■ **International Swiss Talent Forum**, Nottwil, Switzerland.
- Sep 2018 ■ **European Union Contest for Young Scientists - EUCYS2018**, Dublin, Ireland.
- Dec 2018 ■ **1st Place BLCS Christmas Tale Contest**, Braga, Portugal.
- June 2018 ■ **4th Place National Science Fair**, Porto, Portugal.
- March 2018 ■ **Best Students Program**, University of Minho, Portugal.
■ **Member of the International Astronomical Search Collaboration**, 50 objects found.
- 2018 ■ **QUARK program**, Coimbra, Portugal.
- March 2017 ■ **5th Place National Astronomy Olympiads**, Braga, Portugal.
■ **2nd Place Foundation Ilídio Pinho Award**, Coimbra, Portugal.

Miscellaneous Experience

Leadership

- 2023 – 2024 ■ **Director of the Students' Newspaper of Instituto Superior Técnico**, Lisbon, Portugal.
■ **Founded the National Meeting of Academic Newspapers**, Coimbra, Portugal.
■ **Founded the Portuguese Academic Movie Festival**, Lisbon, Portugal.
■ **Organized the Exhibiton of the Students Role on the Portuguese Revolution of 1974**, Lisbon, Portugal.
■ **Organized the Digitalization of Documents of the Revolution**, at the Social Sciences Institute, the Archive of Social History, the Faculty of Fine-Arts, the National Archive and several others.
- 2022 – 2024 ■ **Redactor**, Diferencial - the student's newspaper of Instituto Superior Técnico. 40 articles published.
- 2022 – 2023 ■ **Member of the Board**, Physics' Students Association of Instituto Superior Técnico.
- 2021 – 2022 ■ **Director of the Astronomy Section**, Physics' Students Association of Instituto Superior Técnico.
■ **Messier Marathon Co-Organizer**, Astronomical Observatory of the Alqueva Lake.
■ **4th Astronomy Summer School Organizer**, Instituto Superior Técnico.
■ **Partnership with the Lisbon Astronomical Observatory and the Navy's Gulbenkian Planetarium**, Belém, Portugal.
■ **Co-organizer of the commemoration of the Portuguese Navy Day**, Belém, Portugal.
■ **Organizer of the Joint Astronomical Observation of the Universities of the Metropolitan Area of Lisbon**, Lisbon, Portugal.

Miscellaneous Experience (continued)

- Lead the supervision of the Portuguese team in the IOAA2021, Instituto Superior Técnico.
- 8th Physics on Wheels Organizer, North Region, Portugal.
- "Era uma vez Brasil" Foundation Partnership, Brasil.

Societal Impact

- May 2022 ■ International Week on Youth Rights, Spain, Barcelona.
- Feb. 2020 ■ EUrope: What else?, Famalicão, Portugal.
- Oct 2019 ■ Masterclass - Train your Mind to Live in High-Performance - Speaker, Braga, Portugal.
- Feb 2019 ■ European Narratives - Minhotos sem Fronteiras, Ponte de Lima, Portugal.
- Nov 2018 ■ A(Gentes) M - Agentes de Mudança - Global Citizenship, the Youth and the World, St. Maria da Feira, Portugal.
- Sep 2018 ■ A(Gentes) M - Agentes de Mudança - Active Citizenship Programme, St. Maria da Feira, Portugal.
- Jan 2018 ■ A Portuguese View of China, Braga, Portugal.
- March 2017 ■ UMinho Open Weekend, Braga, Portugal.

Volunteering

- Sep. 2025 ■ European Researchers' Night, CENTRA, Lisbon, Portugal.
- Feb. 2022 ■ Help for Ukraine in Ukraine-Russia War, Moscavide, Portugal.
- 2019 – 2022 ■ Volunteer Tutor, classes on Linear Algebra, Calculus and Mechanics to students from Portuguese-speaking countries.
- 2020 – 2021 ■ Volunteer Tutor, gave courses on Astronomy, Astrophysics, Relativity and Statistics to high-school students.
- Nov. 2017 ■ European Researchers' Night, Braga, Portugal.
- 2012 – 2016 ■ Solidarity Club, help for poor people in Vieira do Minho, Portugal.