

# Santiago Paez Avendaño

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## EDUCATION

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### M.Sc. in Astrophysics

Instituto de Astronomía, Universidad Nacional Autónoma de México

- Current GPA: 9.33/10.0

Mexico City , Mexico

Jan. 2024 – Present

### BA Natural Sciences Education

Universidad de La Sabana, Education Faculty

- GPA: 4.13/5.0
- Awarded thesis: “Exoplanet Hackathon: A challenge-based learning proposal for the development of scientific skills”.

Chia , Colombia

Jan. 2019 – Mar. 2024

## ACADEMIC EXPERIENCE

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### JOURNAL PAPERS

- **Paez, S.**, Gómez Maqueo Chew, Y. and Hebb, L. H. (2025). Data reduction method for OPTICAM multiband time series of transiting exoplanets. Submitted to MNRAS on August 2025.

### PREPRINTS

- Leal, M. A., Tovar, D., Sánchez, J., et al. [included **Paez, S.**] (2021). Mars Dichotomy: Prospects for human life on Mars. EarthArXiv. DOI: [doi.org/10.31223/X51S5J](https://doi.org/10.31223/X51S5J)

### OBSERVATIONAL EXPERIENCE

- Khandelwal, A., Deras Badillo, D., **Paez, S.**, Gómez Maqueo Chew, Y., Petrucci, R., Jofré, E. (2025). Transit follow-up observations of giant planet candidates around M-dwarfs through OPTICAM multi-band photometry. **Code:** FM34. **Time:** 6 nights. **Instrument:** OPTICAM/OAN-SPM 2.1m Telescope.
- Gómez Maqueo Chew, Y., **Paez, S.**, Hebb, L. H. (2025). Insights into stellar activity cycles: Spot crossing during transit. **Code:** FM33. **Time:** 3 nights. **Instrument:** OPTICAM/OAN-SPM 2.1m Telescope.

### CONFERENCE PROCEEDINGS AND POSTERS

- **Paez, S.**, Gómez Maqueo Chew, Y. and Hebb, L. H. (2025). Data reduction method for OPTICAM multiband time-series of transiting exoplanets. *Oral presentation in the XXII Astronomy Students Meeting (REA)*. Mexico City , Mexico .
- **Paez, S.** and Tovar, D. and Barreto, C. (2024). Proyéctate: a novel strategy to reach the public audience using Astronomy as a catching science topic. Oral Presentation. *Oral presentation in Communicating Astronomy with the Public - CAP 2024*.
- León, A., **Paez, S.**, Rentería, A., Chávez, M. & Mamani, K. (2023) Follow-up WASP-43b and WASP-107b transits through differential photometry from OAN-TNT. Poster. *LXVI National Physics Congress*. Morelia, Mexico .
- **Paez, S.**, Barreto, C. & Rojas, N. (2022). Astronomy Festivals: A Strategy for Skill Development in Science Teacher Trainees. Oral Presentation. *XI National Congress on Physics and Astronomy Teaching*. Medellin , Colombia .
- **Paez, S.**, Puentes, G. A. & Becerra, D. (2022). Arduino Uno Models for Teaching about Exoplanets in Transit and Radial Velocity. Oral Presentation. *XI National Congress on Physics and Astronomy Teaching*. Medellin , Colombia .
- Tovar, D., Leal, M. A., Barreto, C. & **Paez, S.** Astrobiology Virtual Festival - Cota 2020. (2021) Novel strategies for astronomy, biology, and geology outreach in Cundinamarca (Colombia ). Oral Presentation. *Communicating Astronomy with the Public - CAP 2021*.
- Tovar, D., Leal, M. A., Barreto, C. & **Paez, S.** (2021) Astronomy Festivals in Cundinamarca (Colombia ) as Educational Strategies for Learning Scientific Concepts. Poster. *Communicating Astronomy with the Public - CAP 2021*.

## INTERNSHIPS, WORKSHOPS, AND SUMMER SCHOOLS

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Code/Astro Workshop

Evanston, IL, USA

A week-long workshop on astronomy software development that prepares participants with the fundamental software engineering skills and best practices necessary for building sustainable open-source packages for astronomy applications.

Aug. 4–8, 2025

### District Education Secretariat

Intern with the Education Evaluation Department, International Baccalaureate Team. Provided support to public schools participating in the International Baccalaureate program. Assisted with logistics, operations, and digital tools for managing and organizing information.

Bogota , Colombia  
Feb. 2024 – Jun. 2024

### Abraham Maslow School

Teacher Assistant for astronomy, biology, and physics classes, as well as a telescope operator.

Chia , Colombia  
Aug. 2023 – Nov. 2023

### XV ESAOBELA

100 hours of astronomical observation using 1-meter and 10-inch telescopes, as well as 51 hours of theoretical classes at the Observatorio Astronómico Nacional de Tonantzintla.

Puebla, Mexico  
Jan. 2023 – Feb. 2023

### Bogota's Planetarium

Evaluator of teaching strategies

Bogota , Colombia  
Aug. 2022 – Nov. 2022

### XXXI Scientific Summer at the OAN-SPM

Summer school. Theoretical classes on general astrophysics topics and remote observation practices with an 84cm telescope at the Observatorio Astronómico Nacional San Pedro Mártir.

Online  
Jun. 2021

### Bosques de Sherwood School

Teacher assistant in chemistry classes.

Chia , Colombia  
Feb. 2022 – May 2022

### Secretariat of Science, Technology, and Innovation: Sopo Mayor's Office

Astronautic festival organizer

Sopo , Colombia  
Aug. 2021 – Nov. 2021

### Alpha-Cen Summer School

Summer School focused on developing programming skills for managing astronomical data and introducing general astrophysics topics.

Online  
Aug. 2022

### Interactive Museum Maloka

Museum's guide and evaluator of teaching strategies.

Bogota , Colombia  
Feb. 2021 – May 2021

### I.E.D. Cundinamarca School

Teacher assistant in biology classes.

Zipaquira , Colombia  
Aug. 2020 – Nov. 2020

## SELECTED ASTRONOMY COURSES

### Master's Courses

- Stellar Astrophysics
- Interstellar Medium
- Dynamics and structure of galaxies
- Extragalactic Astronomy and Cosmology
- Python for Astrophysics
- Planetary Systems
- Introduction to astronomical data modeling

## OUTREACH

### Testimonial

[“In search of exoplanets. The transit of a Colombian astronomer in Mexico”](#). A testimonial about the experience of pursuing a master's degree in astrophysics at UNAM in Mexico

Journal UNAM International  
Mar. 2025

### Public Talk

“Mexico in the discovery and study of distant worlds”. Planetarium Orizaba.

Orizaba, Mexico  
Feb. 2025

**Astronomy Outreach Festivals**

I participated in/or and led the organization of eight astronomy festivals in different municipalities of the Sabana Centro province. During these festivals. We held outreach days with workshops, lectures, and astronomical observations, which over 4,000 total people attended.

Sabana Centro Province, Colombia  
May 2019 – Nov. 2023

**RECOGNITIONS AND SCHOLARSHIPS**

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**National Graduate Scholarship (Master's Degree)**

Fully funded scholarship for master's studies at the Instituto de Astronomía of the Universidad Nacional Autónoma de México

Mexico City , Mexico  
Aug. 2024 – Present

**Bogota's Council**

Recognition with a style note for being a Top 50 finalist for the Global Student Prize 2023. Proposition No. 521 of 2023

Bogota , Colombia  
Dec. 2023

**Thesis IN-BITE**

2nd. Place in a thesis inter-university competition of the research group in physics and other things of the Pedagogical National University (GRIFO)

Bogota , Colombia  
Nov. 2023

**Best Saber Pro test score**

Recognition for achieving the highest score on the Saber Pro exam for the Bachelor of Natural Sciences degree program in 2022.

Chia , Colombia  
Oct. 2023

**Global Student Prize 2023**

[Top 50 Finalist](#). In recognition of exceptional achievements in the classroom and beyond. A Colombian in the top 50 finalists out of 5,600 applicants worldwide.

Varkey and Chegg.org Foundations  
Jul. 2023

**FEST Scholarship**

Fully funded undergraduate scholarship

Bogota Colombia  
Jan. 2019 – Nov. 2024

**OTHER EXPERIENCES**

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**Undergrads Tutor**

Mentoring Program for new undergrad scholars at Universidad de La Sabana

Aug. 2019 – Nov. 2023

**PAT Program Member**

Learning to Work Program at Universidad de La Sabana

Aug. 2019 – Nov. 2023

- Support admissions program to the Faculty of Education
- Management of workshops for school students
- Informative talks about the Faculty of Education and the Bachelor's in Natural Sciences Program.
- Support to the curriculum department of Universidad de La Sabana

**AstroSabana Group Leader**

Study, outreach, and research students' group.

Jan. 2019 – Nov. 2023

- Organization of outreach festivals.
- Management of astronomical observations for the public.
- Outreach astronomy talks to schools, shopping centers, and astronomy associations.
- Management of participating students.

**LANGUAGES**

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- Spanish: Native
- English: B2 — Oxford Test of English 120/140 — Test date: July 2023

## SKILLS

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- **Programming:** Python, Git/Github, MATLAB, HTML/CSS (Basic), R Studio (Basic),
- **Python packages:** Astropy, Lightkurve, exoplanet, pyaneti, multiprocessing, mc3, numpy, scipy, pandas, matplotlib
- **Software:** Jupyter Notebook, AstroImageJ, L<sup>A</sup>T<sub>E</sub>X, Stellarium, Topcat.
- **Operative Systems:** Linux, MacOS