

# Lionel Garcia

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## Education

PhD 2023 - Astronomy, University of Liège, Belgium

Msc 2017 - Computer Science, University of Bordeaux, France

Msc 2017 - Optical Engineering, Institut d'Optique, France

Bs, 2014 - Physics, University of Paris-Sud, France

## Positions

Research Fellow - CCA, Flatiron Institute, New York, USA (2023 - now)

Teaching Assistant - University of Liège, Belgium (2019 - 2021)

Young Graduate Trainee - European Space Agency, Netherlands (2017 - 2018)

Technical Student - CERN, Switzerland (2016 - 2017)

## Teaching at University of Liège

Classical Mechanics - Undergraduate

Mathematical Modeling for the Environment - Graduate

Astronomical Observations - Graduate

## Grants & Proposals

2024 - (PI) JWST General Observer program [5799](#), 22 hours, 205,000 USD

2024 - (co-I) JWST Archival Research program [5370](#), PI Benjamin Rackham, TBD USD

2023 - Flatiron Research Fellowship, Simons Foundation, 210,000 USD

2023 - (co-I) HST Archival Legacy program [17551](#), PI Benjamin Rackham, 530,000 USD

2021 - FRIA Doctoral scholarship, FRS-FNRS, 65,000 EURO

## Talks & Workshops

Dec. 2024 - Workshop Instructor of PySnacks 7, IAA-CSIC, Granada, Spain

Jul. 2024 - Talk at TESS Science Conference III, Cambridge, USA

Jun. 2024 - Seminar at University of Oxford, UK

Oct. 2023 - Seminar at TESS Team Meeting, Cambridge, USA

Oct. 2023 - Seminar at EAPS/MIT, Cambridge, USA

May 2023 - Seminar at IRAP, Toulouse, France

May 2023 - Seminar at Observatoire de la Côte d'Azur, Nice, France

May 2023 - Seminar at European Space Agency, Noordwijk, Netherlands

May 2023 - Seminar at ETH, Zurich, Switzerland

Mar. 2023 - Seminar for VAST, online  
Mar. 2023 - Talk at EMAC Workshop (NASA), online  
Dec. 2022 - Talk at ESO Belgian Day, Brussels, Belgium  
Jul. 2022 - Talk at NAM 2020, Warwick, UK  
May 2022 - Talk at Exoplanet IV, Las Vegas, USA  
May 2020 - Talk at SAG21 symposium (NASA), online  
Jun. 2019 - Poster at TRAPPIST-1 conference, Liège, Belgium

## Software

[spotter](#): Approximate fluxes and spectra of non-uniform stars  
[jaxoplanet](#): Analytical models of stellar light curves  
[nuance](#): Efficient detection of planets transiting active stars  
[prose](#): Modular image processing pipelines for Astronomy  
[twirl](#): Local astrometric plate solving in Python

## Publications

### First author

5. 2024 - Garcia, L. J., Hattori, S., Foreman-Mackey, D., [jaxoplanet](#): Hardware-Accelerated Orbits and Stellar Light Curves, [In prep.](#)
4. 2024 - Garcia, L. J., Foreman-Mackey, D., Murray, C. A., et al., [nuance](#): Efficient Detection of Planets Transiting Active Stars, [AJ](#), **167**, 284
3. 2022 - Garcia L. J., Moran, S. E., Rackham, B. V., et al., HST/WFC3 transmission spectroscopy of the cold rocky planet TRAPPIST-1h, [A&A](#), **665**, A19
2. 2022 - Garcia L. J., Timmermans, Mathilde, Pozuelos, Francisco J. et al., [prose](#): a Python framework for modular astronomical images processing, [MNRAS](#) **509** 4817-4828
1. 2018 - Garcia L., Prod'homme T., Lucsanyi D. et al., Validation of a CCD cosmic ray event simulator against Gaia in-orbit data, [Proc. SPIE](#) **10709**

### Co-author

30. 2024 - Pedersen, P. P., Queloz, D., Garcia, L., et al., Infrared photometry with InGaAs detectors: First light with SPECULOOS, [arXiv e-prints](#), [arXiv:2410.22140](#)
29. 2024 - Barkaoui, K., Pozuelos, F. J., Hellier, C., et al., An extended low-density atmosphere around the Jupiter-sized planet WASP-193 b, [Nature Astronomy](#), **8**, 909
28. 2024 - TRAPPIST-1 JWST Community Initiative, de Wit, J., Doyon, R., et al., A roadmap for the atmospheric characterization of terrestrial exoplanets with JWST, [Nature Astronomy](#), **8**, 810
27. 2024 - Fortier, A., Simon, A. E., Broeg, C., et al., CHEOPS in-flight performance. A comprehensive look at the first 3.5 yr of operations, [A&A](#), **687**, A302
26. 2024 - Timmermans, M., Dransfield, G., Gillon, M., et al., TOI-4336 A b: A temperate sub-Neptune ripe for atmospheric characterization in a nearby triple M-dwarf system, [A&A](#), **687**, A48
25. 2024 - Pinçon, C., Petitdemange, L., Raynaud, R., et al., Coriolis darkening in late-type stars. II. Effect of self-sustained magnetic fields in stratified convective envelopes, [A&A](#), **685**, A129

24. 2024 - Dransfield, G., Timmermans, M., Triaud, A. H. M. J., et al., A  $1.55 R_{\oplus}$  habitable-zone planet hosted by TOI-715, an M4 star near the ecliptic South Pole, [MNRAS](#), **527**, [35](#)
23. 2023 - Triaud, A. H. M. J., Dransfield, G., Kagetani, T., et al., An M dwarf accompanied by a close-in giant orbiter with SPECULOOS, [MNRAS](#), **525**, [L98](#)
22. 2023 - Barkaoui, K., Timmermans, M., Soubkiou, A., et al., TOI-2084 b and TOI-4184 b: Two new sub-Neptunes around M dwarf stars, [A&A](#), **677**, [A38](#)
21. 2023 - Ghachoui, M., Soubkiou, A., Wells, R. D., et al., TESS discovery of a super-Earth orbiting the M-dwarf star TOI-1680, [A&A](#), **677**, [A31](#)
20. 2024 - Barkaoui, K., Pozuelos, F. J., Hellier, C., et al., An extended low-density atmosphere around the Jupiter-sized planet WASP-193 b, [Nature Astronomy](#), **8**, [909](#)
19. 2023 - Morello, G., Parviainen, H., Murgas, F., et al., TOI-1442 b and TOI-2445 b: Two potentially rocky ultra-short period planets around M dwarfs, [A&A](#), **673**, [A32](#)
18. 2023 - Pozuelos, F. J., Timmermans, M., Rackham, B. V., et al., A super-Earth and a mini-Neptune near the 2:1 MMR straddling the radius valley around the nearby mid-M dwarf TOI-2096, [A&A](#), **672**, [A70](#)
17. 2023 - Pedersen, P. P., Murray, C. A., Queloz, D., et al., Precise near-infrared photometry, accounting for precipitable water vapour at SPECULOOS Southern Observatory, [MNRAS](#), **518**, [2661](#)
16. 2022 - Delrez, L., Murray, C. A., Pozuelos, F. J., et al., Two temperate super-Earths transiting a nearby late-type M dwarf, [A&A](#), **667**, [A59](#)
15. 2022 - Burdanov, A. Y., de Wit, J., Gillon, M., et al., SPECULOOS Northern Observatory: Searching for Red Worlds in the Northern Skies, [PASP](#), **134**, [105001](#)
14. 2022 - Gan, T., Soubkiou, A., Wang, S. X., et al., TESS discovery of a sub-Neptune orbiting a mid-M dwarf TOI-2136, [MNRAS](#), **514**, [4120](#)
13. 2022 - Dransfield, G., Mékarnia, D., Triaud, A. H. M. J., et al., Observation scheduling and automatic data reduction for the Antarctic Telescope, ASTEP+, [Proc. SPIE](#), **12186**, [121861F](#)
12. 2022 - Murray, C. A., Queloz, D., Gillon, M., et al., A study of flares in the ultra-cool regime from SPECULOOS-South, [MNRAS](#), **513**, [2615](#)
11. 2022 - Günther, M. N., Berardo, D. A., Ducrot, E., et al., Complex Modulation of Rapidly Rotating Young M Dwarfs: Adding Pieces to the Puzzle, [AJ](#), **163**, [144](#)
10. 2023 - Morello, G., Parviainen, H., Murgas, F., et al., TOI-1442 b and TOI-2445 b: Two potentially rocky ultra-short period planets around M dwarfs, [A&A](#), **673**, [A32](#)
9. 2022 - Schanche, N., Pozuelos, F. J., Günther, M. N., et al., TOI-2257 b: A highly eccentric long-period sub-Neptune transiting a nearby M dwarf, [A&A](#), **657**, [A45](#)
8. 2021 - Wells, R. D., Rackham, B. V., Schanche, N., et al., A large sub-Neptune transiting the thick-disk M4 V TOI-2406, [A&A](#), **653**, [A97](#)
7. 2021 - Leleu, A., Alibert, Y., Hara, N. C., et al., Six transiting planets and a chain of Laplace resonances in TOI-178, [A&A](#), **649**, [A26](#)
6. 2021 - Sebastian, D., Gillon, M., Ducrot, E., et al., SPECULOOS: Ultracool dwarf transit survey. Target list and strategy, [A&A](#), **645**, [A100](#)
5. 2020 - Sebastian, D., Pedersen, P. P., Murray, C. A., et al., Development of the SPECULOOS exoplanet search project, [Proc. SPIE](#), **11445**, [1144521](#)

4. 2020 - Niraula, P., Wit, J. de ., Rackham, B. V., et al.,  $\pi$  Earth: A 3.14 day Earth-sized Planet from K2's Kitchen Served Warm by the SPECULOOS Team, [AJ](#), **160**, [172](#)
3. 2020 - Demory, B.-O., Pozuelos, F. J., Gómez Maqueo Chew, Y., et al., A super-Earth and a sub-Neptune orbiting the bright, quiet M3 dwarf TOI-1266, [A&A](#), **642**, [A49](#)
2. 2020 - Pozuelos, F. J., Suárez, J. C., de Elía, G. C., et al., GJ 273: on the formation, dynamical evolution, and habitability of a planetary system hosted by an M dwarf at 3.75 parsec, [A&A](#), **641**, [A23](#)
1. 2020 - Murray, C. A., Delrez, L., Pedersen, P. P., et al., Photometry and performance of SPECULOOS-South, [MNRAS](#), **495**, [2446](#)