



Lionel J. Garcia

born in 1994 in France

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 <https://lgrcia.github.io>

EDUCATION

Sept. 2023 - now **Research fellow**

Flatiron Institute
nearby, USA

To do

2019 - 2023 **PhD in Astronomy**

University of Liège
Belgium

Towards the detailed atmospheric characterization of temperate rocky exoplanets

Supervisor: Michaël Gillon (SPECULOOS & TRAPPIST teams)

2016 - 2017 **MSc in Computer Science**

University of Bordeaux
France

High performance computing and Image processing

2014 - 2017 **MSc in Optical Instrumentation**

Institut d'Optique
France

Photonics and optical Instrumentation

2012 - 2014 **BS in Physics**

University of Paris-Sud
France

Applied Physics

POSITIONS

2019 - 2021 **Teaching assistant**

University of Liège
Belgium

Supervision of tutorial sessions at undergraduate and graduate levels

150h/year – combined with half-time research

2018 (1 year) **Young Graduate Trainee**

ESA-ESTEC
Netherlands

Development of novel strategies to build better spacecraft precursor models

2017 (6 months) **Technical Student**

CERN
Switzerland

Characterization and prototyping of next-generation Beam Wire Scanners for the LHC injectors upgrade

2016 (3 months) **Trainee**

ESA-ESTEC
Netherlands

Development and validation of a CCD cosmic ray impact simulator against Gaia in-orbit data

TEACHING

University of Liège 2019 - 2021	Mechanics 101 Tutorials - Undergraduate From Newtonian mechanics to the study of solids' motion <i>Professor: Pierre Dauby</i>
	Mathematical modeling for the environment Tutorials - Graduate Dynamical modeling of populations and their environments <i>Professor: Marilaure Grégoire</i>
	Astronomical observations Tutorials and Lectures - Graduate Telescope observations and applications to Astrophysics (including practical sessions at the Oukaimeden observatory, Morocco) <i>Professor: Emmanuel Jehin</i>

GRANTS

2023 Simons Foundation	Flatiron Research Fellowship 2 years full-time research funding
2021 F.R.S.-FNRS	FRIA Doctoral scholarship 2 years full-time research funding

SKILLS

Languages	Programming
English and French (fluent) Spanish (intermediate)	Python C++ C Julia JS - HTML - CSS LaTeX git

PUBLICATIONS

First-authored

- 2023 **nuance: Transit detection in the presence of stellar variability and correlated noise**
[Garcia L. J.](#), Foreman-Mackey, D. *in prep. for A&A*
- 2022 **HST/WFC3 transmission spectroscopy of the cold rocky planet TRAPPIST-1h**
[Garcia L. J.](#), Moran, S. E., Rackham, B. V., et al. *A&A*, 665, A19
- 2022 **prose: a Python framework for modular astronomical images processing**
[Garcia L. J.](#), Timmermans, Mathilde, Pozuelos, Francisco J. et al. *MNRAS* 509 4817-4828
- 2018 **Validation of a CCD cosmic ray event simulator against Gaia in-orbit data**
[Garcia L.](#), Prod'homme T., Lucsanyi D. et al. *Proc. SPIE* 10709

Other collaborations

- 2023 **An M dwarf accompanied by a close-in giant orbiter with SPECULOOS**
Triaud, A. H. M. J., Dransfield, G., Kagitani, T., et al. (including [Garcia L. J.](#)) *MNRAS*, 525, L98
- 2023 **TESS discovery of a super-Earth orbiting the M-dwarf star TOI-1680**
Ghachoui, M., Soubkiou, A., Wells, R. D., et al. (including [Garcia L. J.](#)) *A&A*, 677, A31
- 2023 **WASP-193b: An extremely low-density super-Neptune**
Barkaoui, K., Pozuelos, F. J., Hellier, C., et al. (including [Garcia L. J.](#)) *arXiv e-prints*, arXiv:2307.08350
- 2023 **TOI-1442 b and TOI-2445 b: Two potentially rocky ultra-short period planets around M dwarfs**
Morello, G., Parviainen, H., Murgas, F., et al. (including [Garcia L. J.](#)) *A&A*, 673, A32
- 2023 **A super-Earth and a mini-Neptune near the 2:1 MMR straddling the radius valley around the nearby mid-M dwarf TOI-2096**
Pozuelos, F. J., Timmermans, M., Rackham, B. V., et al. (including [Garcia L. J.](#)) *A&A*, 672, A70
- 2023 **Precise near-infrared photometry, accounting for precipitable water vapour at SPECULOOS Southern Observatory**
Pedersen, P. P., Murray, C. A., Queloz, D., et al. (including [Garcia L. J.](#)) *MNRAS*, 518, 2661
- 2022 **Two temperate super-Earths transiting a nearby late-type M dwarf**
Delrez, L., Murray, C. A., Pozuelos, F. J., et al. (including [Garcia L. J.](#)) *A&A*, 667, A59
- 2022 **SPECULOOS Northern Observatory: Searching for Red Worlds in the Northern Skies**
Burdanov, A. Y., de Wit, J., Gillon, M., et al. (including [Garcia L. J.](#)) *PASP*, 134, 105001
- 2022 **TESS discovery of a sub-Neptune orbiting a mid-M dwarf TOI-2136**
Gan, T., Soubkiou, A., Wang, S. X., et al. (including [Garcia L. J.](#)) *MNRAS*, 514, 4120
- 2022 **Observation scheduling and automatic data reduction for the Antarctic Telescope, ASTEP+**
Dransfield, G., Mékarnia, D., Triaud, A. H. M. J., et al. (including [Garcia L. J.](#)) *Proc. SPIE*, 12186, 121861F
- 2022 **A study of flares in the ultra-cool regime from SPECULOOS-South**
Murray, C. A., Queloz, D., Gillon, M., et al. (including [Garcia L. J.](#)) *MNRAS*, 513, 2615
- 2022 **Complex Modulation of Rapidly Rotating Young M Dwarfs: Adding Pieces to the Puzzle**
Günther, M. N., Berardo, D. A., Ducrot, E., et al. (including [Garcia L. J.](#)) *AJ*, 163, 144

- 2022 **TOI-1442 b and TOI-2445 b: two ultra-short period super-Earths around M dwarfs**
Morello, G., Parviainen, H., Murgas, F., et al. (including Garcia L. J.) *arXiv e-prints*, *arXiv:2201.13274*
- 2022 **TOI-2257 b: A highly eccentric long-period sub-Neptune transiting a nearby M dwarf**
Schanche, N., Pozuelos, F. J., Günther, M. N., et al. (including Garcia L. J.) *A&A*, 657, A45
- 2021 **A large sub-Neptune transiting the thick-disk M4 V TOI-2406**
Wells, R. D., Rackham, B. V., Schanche, N., et al. (including Garcia L. J.) *A&A*, 653, A97
- 2021 **Six transiting planets and a chain of Laplace resonances in TOI-178**
Leleu, A., Alibert, Y., Hara, N. C., et al. (including Garcia L. J.) *A&A*, 649, A26
- 2021 **SPECULOOS: Ultracool dwarf transit survey. Target list and strategy**
Sebastian, D., Gillon, M., Ducrot, E., et al. (including Garcia L. J.) *A&A*, 645, A100
- 2020 **Development of the SPECULOOS exoplanet search project**
Sebastian, D., Pedersen, P. P., Murray, C. A., et al. (including Garcia L. J.) *Proc. SPIE*, 11445, 1144521
- 2020 **π Earth: A 3.14 day Earth-sized Planet from K2's Kitchen Served Warm by the SPECULOOS Team**
Niraula, P., Wit, J. de., Rackham, B. V., et al. (including Garcia L. J.) *AJ*, 160, 172
- 2020 **A super-Earth and a sub-Neptune orbiting the bright, quiet M3 dwarf TOI-1266**
Demory, B.-O., Pozuelos, F. J., Gómez Maqueo Chew, Y., et al. (including Garcia L. J.) *A&A*, 642, A49
- 2020 **GJ 273: on the formation, dynamical evolution, and habitability of a planetary system hosted by an M dwarf at 3.75 parsec**
Pozuelos, F. J., Suárez, J. C., de Elía, G. C., et al. (including Garcia L. J.) *A&A*, 641, A23
- 2020 **Photometry and performance of SPECULOOS-South**
Murray, C. A., Delrez, L., Pedersen, P. P., et al. (including Garcia L. J.) *MNRAS*, 495, 2446

COMMUNICATIONS

May 2023 Seminar	New light on late M-dwarfs photospheres: transiting exoplanets and stellar contamination <u>Garcia L. J.</u> <i>IRAP (Toulouse, France)</i> <i>Observatoire de la Cote d'Azur (Nice, France)</i> <i>European Space Agency (Noordwijk, Netherlands)</i>
May 2023 Seminar	Small exoplanets around small and cool stars <u>Garcia L. J.</u> <i>ETH Zurich (Switzerland)</i>
March 2023 Feb. 2013 Talks	prose: A Python package to build astronomical image processing pipelines <u>Garcia L. J.</u> <i>VAST (online)</i> <i>EMAC Workshop (online)</i>
July 2022 Talk	HST/WFC3 transmission spectroscopy of the cold rocky planet TRAPPIST-1h <u>Garcia L. J.</u> , Moran S., Rackham B. V. et al. <i>NAM 2022 (Warwick, UK)</i>
July 2022 Poster	The bright future of PSF photometry using convolutional neural networks <u>Garcia L. J.</u> <i>NAM 2022 (Warwick, UK)</i>
May 2022 Poster	Transmission spectroscopy of the cold rocky planet TRAPPIST-1h <u>Garcia L. J.</u> , Moran S., Rackham B. V. et al. <i>Exoplanet IV (Las Vegas, USA)</i>
May 2020 Talk	TRAPPIST-1h transmission spectrum: Knowing the star <u>Garcia L. J.</u> , Moran S., Rackham B. V. et al. <i>SAG21 symposium (online)</i>
Jun. 2019 ★ Poster	specphot: a suite for SPECULOOS data analysis <u>Garcia L. J.</u> & the SPECULOOS team <i>TRAPPIST-1 conference (Liège, Belgium)</i>

MISCELLANEOUS

Ultra running - Illustration