

Juan García Bonilla



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Professional Experience

Simulation Software Engineer (Robotics Technologist); Jet Propulsion Laboratory, NASA Sep. 2023 – Present

- Software development at the DARTS Lab for multi-mission space system simulation tools.
- Developed and implemented complex engineering/physics models for robotics platforms.
- Re-architected systems to adhere to modern standards of development for better maintainability and usability.
- Lead simulation environment design for users who needed to quickly prototype spacecraft GNC algorithms.

Visiting Scholar; AVS Lab, University of Colorado Boulder Feb. 2023 – Jul. 2023

- Part-time contributor to the open-source “Basilisk” astrodynamics simulation framework.
- Refactored and improved inter-language interfaces (C++/C/Python), numerical integrators, & gravity modeling.

Education

Delft University of Technology; Delft, Netherlands Aug. 2021 – Aug. 2023

- MSc Aerospace Engineering, Space Exploration profile. Average grade **8.9 over 10; Cum laude, top 5%**
- Areas of Expertise: Astrodynamics, Mission Analysis, Software Development, Modeling and Simulations.

Universidad Carlos III de Madrid; Madrid, Spain Sep. 2017 – Jul. 2021

- Bachelor’s in aerospace engineering. Average grade **9.11 over 10**. Final thesis: **Cum laude, top 5%**.

Exchange: Georgia Institute of Technology; Atlanta, Georgia Aug. 2019 – May 2020

- Candidate for Bachelor’s in aerospace engineering, **GPA 4.0 over 4.0**.

Training & Certifications

Data Structures & Algorithms Nanodegree; Udacity

160 hours online course detailing basic and advanced data structures and algorithms in Python.

C++ Nanodegree; Udacity

160 hours online course focused on OOP, memory management and concurrency in C++.

Skills

C++ **	Python **	MATLAB **	C *	Java *
Git **	Linux **	GitLab & GitHub **		LaTeX **
Documenting	Troubleshooting	Test Writing	Architecting	Code review

Selected Publications

- [García Bonilla, J.](#), Carzana L., & Heiligers, J. “**Uncertainty quantification for solar sails in the near-Earth environment**”. International Symposium on Space Sailing 2023, Congress Proceedings, 6.
- [García Bonilla, J.](#), Machuca, P., & Sanjurjo Rivo, M. “**Small-body Gravitational Modeling for On-board Operations and Mass Distribution Estimation: Trade-off Analysis and Novel Approach**”. IAC 2021 Congress Proceedings, 72.