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Miguel Callejón Cantero

Systems Engineer

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Flight Dynamics Engineer at Deimos Space - Indra, MSc from TUDelft. Specialized in the space domain, both scientific and technologically. Robust technical, systems engineering skills proven by previous experience developing astrodynamic algorithms with a mathematical core, and integrating each software component in an operational system. Ease to learn and adapt to new technologies and requirements. Strong team-working, assertivity, communication, and drive skills proven by different working environment. Looking for upcoming challenges to foster technical expertise and contribute to a growing space industry.

Skills

Programming	Python (Pip, Numpy, Pandas, Plotly...), Fortran 90, C, C++ (Boost, Eigen, Cmake), JAVA (Spring Boot)
Presentation tools	Office suite, LaTeX, MarkDown, GIMP, ECSS, CCSDS
Other technical tools	Jupyter, Visual Studio Code, Git, Linux, Powershell, Gitlab CI, Docker, Grafana, Prometheus
Communication	Spanish (mother tongue), English (C1, fluent)

Technical Experience

FLIGHT DYNAMICS SYSTEMS ENGINEER IN THE INTERPLANETARY MISSION ANALYSIS TEAM **Feb. 2025 — Currently**
Deimos Space - Indra *Tres Cantos, Comunidad de Madrid, Spain (Hybrid)*

- Development of Flight Dynamics System (FDS) C++ astrodynamics library for LEO-PNT satellite.
- Maintenance and delivery of FDS software for NAOS satellite, handling bug fixes and service requests (SRPs)..
- Maintenance of the continuous integration system (bamboo), and deployment infrastructure (CMake).
- Enhancement of an Object Relational Mapping (ORM) tool between PostgreSQL and C++ that enables the system's domain logic.

FLIGHT DYNAMICS ENGINEER IN THE SPACE SITUATIONAL AWARENESS (SSA) TEAM **Apr. 2023 — Feb. 2025**
GMV *Tres Cantos, Comunidad de Madrid, Spain (Hybrid)*

- Development of C++ astrodynamics library to build and maintain a space catalogue of objects.
  - Low-level implementation of astrodynamic algorithms, and extensive validation through testing.
  - High-level analysis of the functionality and limitations of the algorithms implemented.
- Integration of the cataloguing library infrastructure in the final system:
  - Support with back-end development. Maintenance and improvement of subsystem tests. Creation of performance (stress, load) tests for key back-end processes.
  - Integration of a monitoring stack for external components: database, message orquestration, micro-services. Monitoring of the internal system KPI's using scrape agents and monitoring tools.
- Some technologies used: C++17 (Boost, Eigen, CMake, Google Tests), Visual Studio Code, GitLab, Python (pandas, plotly), Spring Boot, Kafka, PostgreSQL, RESTful API (OpenAPI), Robot framework, Grafana, and Prometheus.
- International work environment with members from Germany, France, and Spain. Agile methodology (SCRUM).

INTERN IN THE SPACE SITUATIONAL AWARENESS (SSA) TEAM **Jun. 2022 — Apr. 2023**
GMV *Tres Cantos, Comunidad de Madrid, Spain (Hybrid)*

- Performing Master's thesis: Assimilation of Swarm C atmospheric density observations into NRLMSISE-00. Analysis of the accuracy improvement of data assimilation into a density model with several satellite geometries at varying altitudes and space weather conditions. Preliminary results presented in NEO-SST 2 conference.

INTERN IN THE ADVANCED CONCEPTS TEAM (ACT) **Jul. 2020 — Nov. 2020**
European Space Agency (ESA) *Noordwijk, Zuid Holland, The Netherlands (Hybrid)*

- Created three optimisation challenges in the web platform optimize: Jupiter Icy Moons Explorer (JUICE) mission design, Traveling Salesman Problem (TSP) based on space debris recovery, and interferometry reconstruction.

Education

Master of Science in Aerospace Engineering **Sep. 2019 — Apr. 2023**
Technical University of Delft (TUDelft) *Delft, Zuid Holland, The Netherlands*

- Specialization: Space Flight, Space Exploration.
- Key projects: Systems requirements analysis of an *asteroid mining mission*. *Shape Design optimisation of an Earth re-entry system* to find the shape with the best compromise between three objectives. Master's thesis at GMV.

Grado en Ingeniería Aeroespacial **Sep. 2015 — Aug. 2019**
School of Aeronautical and Space Engineering (ETSIAE), Technical University of Madrid (UPM) *Madrid, Madrid, Spain*

- Specialization: Aerospace Science and Technology
- Internship in the Department of Applied Mathematics working with Open Source Python framework FEnics and Paraview. Dissertation (Trabajo Fin de Grado, TFG): Implementation of a compressible Navier-Stokes solver using FEnics.