Gonçalo Nespral

✉ gonespral@me.com   📞 +34 618 695 198   in LinkedIn   ↗ Personal Site

Summary

Passionate and experienced engineer with a proven ability to integrate multiple engineering disciplines, thriving in international and dynamic team environments with trilingual proficiency. Continuously demonstrates strong project management and organizational capabilities, emphasizing teamwork and collaboration. Enthusiastic about the future of robotics, AI and space exploration.

Experience

Tesla - Tilburg, The Netherlands   **Sep 2024 - March 2025**

Mechatronics Engineering Intern

- Led the automation of the battery rework production line, managing project timelines and budget allocation.
- Developed a Monte Carlo discrete event simulation to evaluate various automation configurations.
- Conducted a safety and process FMEA to mitigate operator/ergonomic risks, and define automation requirements.
- Upgraded and extended the capabilities of production test equipment using MySQL, LabView and Python.
- Created 2D/3D schematics using CATIA V6 and Solidworks to support CE certification and outsourced production.
- Ensured compliance with EU regulations and Tesla standards for safety in all projects.

Delft Aerospace Rocket Engineering (DARE) ↗ - Delft, The Netherlands   **Feb 2021 - Sep 2023**

Structures Engineer, Manufacturing, Aerodynamics

- Designed high-pressure cryogenic propellant tanks and carbon-fiber composite structures for the Stratos V rocket.
- Developed custom parametric design and simulation tools used to optimize propellant tank design.
- Performed FEA, using Ansys Mechanical, for structural and thermal simulations of the propellant tanks.
- Gained experience in machining and prepreg wet-layup while producing prototype components and flight hardware.
- Manufactured two *Sustainer Reborn* solid motors (fibreglass layup and fuel grain casting).

Education

Delft University of Technology (TU Delft) - Delft, The Netherlands

MSc Robotics   **April 2025 - Present**

- Expected graduation June 2027.
- Grade weighted average *to date*: 8.3 (4.0 GPA)[1]
- Relevant courses: Machine Perception, Path Planning & Decision Making, Dynamics & Control, Evolutionary Algorithms, Deep Reinforcement Learning , Robot Software (C++/ROS2), Human-Robot Interaction, Risk Management.
- Member of the *DSZ WAVE* triathlon association.

BSc Aerospace Engineering & Minor in Robotics   **Sep 2020 - June 2024**

- Grade weighted average *Minor in Robotics*: 8.3 (4.0 GPA)[1]
- Grade weighted average *total*: 7.4 (3.3 GPA)[1]
- Teaching assistant for *CAD & Engineering Drawing* (CATIA V6), personally mentoring 31 students.

Projects   **2016 - Present**

The following are a collection of personal and academic engineering projects carried out over the years, in order of relevance.

- **Tank Design Tool** ↗ – Parametric design tool for the Stratos V rocket team that automates the preliminary sizing, stress analysis, and optimization of propellant tanks.
- **Titanium-CFRP Joint Tooling for Launch Vehicles** ↗ – Low-cost method for manufacturing precise titanium-to-carbon-fiber-reinforced polymer (CFRP) joints, designed for launch vehicle interstages.
- **Project REBO** ↗ – Robot concept for automated beverage can collection and recycling. Designed robot chassis components in Solidworks for machining/3D printing and integrated mobility control with ROS2.
- **Hacking Cars** ↗ – At age 15, developed an exploit against wireless car key systems, published technical findings.

Additional Information

- **Nationalities**: American, Spanish
- **Languages**: English (Native), Spanish (Native), Portuguese (Native), French (Elementary Proficiency)
- **Technical Skills**: Python (Advanced), C++ (Beginner) ROS/ROS2 (Intermediate), Linux (Advanced), 3DEXPERIENCE CATIA / ENOVIA (Advanced), Solidworks / PDM (Intermediate), AutoCAD Architecture + FDU (Intermediate), Ansys Mechanical (Beginner), MySQL (Beginner) MS Office (Advanced), Blender (Intermediate), 3D printing (Intermediate)
- **Certifications**: TU Delft Dreamhall Machining (Benchworking, Turning and Milling).

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[1]Dutch grades interpolated to 4.0 scale GPA equivalent per University College Utrecht conversion table ↗