Martin Bernat

I'm an **Aerospace engineer**, graduate of **MSc Aerospace**, participant of **NASA academy** and a member of various **space initiatives**. Tri-lingual team player, leader, and space enthusiast, with proficiency in CAD software, programming, CFD and FEA analysis and manufacturing.

WORK EXPERIENCE

05/2023 - Now

Systems engineer in **STRATOSYST**
- Worked on a research, development and analysis of High-altitude Pseudo Satellites (HAPS) and stratospheric micro-launchers.
- Done planning, requirement gathering, project management, proposal writing (for ESA) and development of mechanisms and components.

04/2022 - 07/2022

Mechanisms and Robotics intern in **OHB System AG**
- Developed a mathematical model for a pendulum mechanism in MATLAB and Simulink.
- Performed tuning of controllers, filters and performed sensitivity analysis to validate robustness via self-developed script utilizing Monte Carlo methods.

03/2019 - 11/2020

Aerospace engineering intern in **Suborbitality**
- Collaborated on a design of a two-stage suborbital rocket. Responsible for separation sub-systems and payload.
- Did research of requirements. Designed parts in a CAD software SolidWorks and lead change related discussions with stakeholders.

07/2019 - 09/2019

Research and Development engineer in **Entry Engineering s.r.o.**
- Modelled and drew parts of an engine stand assembly, small electronic devices and cases for devices used in an automotive industry using CATIA.

MY PROJECTS

- Member of: Czech Rocket Society, Munich Orbital Verification Experiment, Scientific Workgroup for Rocketry and Spaceflight, Swansea University Aerospace Society (details available on my website).

EDUCATION

2020 – 2023   **MSc Aerospace** in **Technical University of Munich**

- Master's thesis: "*System Analysis of a Novel Water Electrolysis Propulsion System for a Satellite Mission in Low Earth Orbit*".
- Systems engineer and a member of mechanical implementation team in the Munich Orbital Verification Experiment (2021/2022)
- Member of a cube-sat development team. Created block definition and internal block diagrams in MagicDraw. Communicated with sub-team representatives to implement changes and participated in review and discussion meetings with team management. Designed mechanisms for deployable sub-systems.

2017 - 2020   **BEng Aerospace engineering** in **Swansea University**

- Graduated with First Class Honours.
- Bachelor's thesis: "*Preliminary design and validation of a single-stage Mars Ascent Vehicle*".
- Vice-president of the Swansea University Aerospace Society (2019/2020)
- Organized and coordinated employer talks, social events, and aerospace events such as operation of a flight simulator.
- Communicated with university representatives and served as a peer facilitator for over 100 society members.

2018   **Aerospace engineering exchange** in **Texas A&M University**

- NASA L'SPACE Virtual Academy participant (2018/2019)
- Collaborated on a project of "*Small Spacecraft Mission of Opportunity deployed to a planetary surface-Mars*".

IT SKILLS

- **CAD:** SolidWorks, CATIA, SolidEdge
- **CFD:** ANSYS Fluent, Altair Wind Tunnel
- **FEA:** SolidWorks
- **Programming:** MATLAB, SIMULINK, Python
- Google Foundations of Project Management

LANGUAGES

- **English:**   level C1
- **German:**   level B1
- **Czech:**   level C2

REFERENCES AVAILABLE UPON REQUEST