



Contact Information

Technical University of Munich
Human Spaceflight Technology
Lise-Meitner-Str. 8
85521 Ottobrunn (Germany)

gisela.detrell@tum.de

www.asg.ed.tum.de/hsp

1. WORK EXPERIENCE

Research and teaching in the field of human spaceflight since 2010.

June 2023 – present	Professor in Human Spaceflight Technology at <i>Technische Universität München</i>
April 2018 – May 2023	Head of Life Support and Energy System Research Group at <i>Institut für Raumfahrtssysteme - Universität Stuttgart</i> , Stuttgart (Germany)
July 2014 – March 2018	Research Associate at <i>Institut für Raumfahrtssysteme - Universität Stuttgart</i> , Stuttgart (Germany)
February 2014 – August 2016	Part-time lecturer at <i>Universitat Politècnica de Catalunya (UPC)</i> , Terrassa (Spain)
August 2010 – December 2011	Research Assistant at <i>Institut für Raumfahrtssysteme - Universität Stuttgart</i> , Stuttgart (Germany)
February 2010 – February 2014	Teaching & Research Staff at <i>Universitat Politècnica de Catalunya (UPC)</i> , Terrassa (Spain)

2. EDUCATION

PhD	2009 – 2015	<i>Universität Stuttgart – Universitat Politècnica de Catalunya (UPC)</i> Co-tutoring program, supervisors: Prof. Dr. Dr. Messerschmid and Prof. Dr. Grifol
Dipl.-Ing.	2004 – 2009	Aerospace Engineering at <i>Universitat Politècnica de Catalunya (UPC)</i>

3. EXTRA CURRICULAR ACTIVITIES

June – August 2012	<i>Space Studies Program (SSP) of the International Space University (ISU)</i> , held at <i>Florida Institute of Technology (FIT)</i> and <i>NASA Kennedy Space Center</i> , Florida (USA)
August 2007	Summer School: <i>New Propulsion technologies for launchers and spacecraft</i> in <i>Hochschule Heilbronn</i> and <i>Deutsches Zentrum für Luft- und Raumfahrt – DLR Lampoldshausen</i> (Germany), organized by <i>Communauté des Villes Ariane (CVA)</i> and supported by <i>European Space Agency</i>

4. TEACHING EXPERIENCE

2014 – present	Over 30 supervised Bachelor's/Master's Theses at <i>Technische Universität München</i> (Germany), <i>Universität Stuttgart</i> (Germany), <i>Universitat Politècnica de Catalunya</i> (Spain), and <i>University of Copenhagen</i> (Denmark).	
2023 – present	<i>Technische Universität München</i> (Germany) – Bachelor's and Master's Courses:	
	MA Lecture <i>Human Spaceflight Technology</i>	Creation and course responsible
	MA Lecture <i>Life Support Systems</i>	Creation and course responsible
	MA Lecture <i>Humans in Space</i>	Creation and course responsible
	MA/BA <i>Space Station Design Workshop</i>	Main organization
	MA Seminar <i>Spacecraft Manouvers</i>	Creation and course responsible
	BA <i>Engineering Project HSP</i>	Creation and course responsible
	BA Practical Course <i>Biological LSS</i>	Supervision
	BA Practical Course <i>Simulation of LSS</i>	Supervision

2010 – 2023	<i>Universität Stuttgart, Stuttgart (Germany) – Master’s Lectures:</i>	
	Lecture <i>Life Support and In-Situ Resources Utilization</i>	Creation and course responsible, since 2022
	Lecture <i>Astronautics and Space Explorations</i>	Coordination support since 2018 and single lectures on LSS
	Lecture <i>Space Stations</i>	Coordination support since 2011 and single lectures on <i>Safety Design and Systems Engineering</i> and LSS
	<i>Space Station Design Workshop</i>	Support expert on LSS since 2010, coordination in 2017 and 2022
	Module <i>Ausgewählte Praktika in der Raumfahrt</i>	Creation of new training on LSS in 2017, course responsible since 2018
2017 – 2019	<i>International Space University – Strasbourg (France) – Guest Lecturer (by Volker Damann) at Master’s Elective course Life Support System for Future Human Space Voyages</i>	
2013	<i>Institut Supérieur de l’Aéronautique et de l’Espace – Toulouse (France) – Guest Lecturer (by Prof. Stéphanie Lizy-Destrez) at Bachelor’s Module Vols habités</i>	
2010 – 2016	<i>Universitat Politècnica de Catalunya (UPC), Terrassa (Spain) – Bachelor’s and Master’s Lectures:</i>	
	<i>Airplane Design</i>	Responsible of calculation part 2011 – 2013
	<i>Space Vehicles Design I+II</i>	Single lectures on LSS, Communications, Fuel Cells, On-Board Data Handling and Operations 2010 – 2013
	<i>Airspace, Air Navigation and Infrastructure</i>	Course responsible 2014
	<i>Space Engineering</i>	Course responsible in 2015
	<i>Spacecraft Design</i>	Single lectures on LSS, course responsible in 2015

5. RESEARCH PROJECTS

2024 – present	<i>APACE - Towards a bio-mimetic sunlight pumped laser based on photosynthetic antenna complexes, partner – EU Horizon Europe Research and Innovation Programme, Grant Agreement No. 101161312</i>
2024 - 2025	<i>Space Station Design Workshop – own project - Bayerisches Staatsministerium für Wirtschaft, Landesentwicklung und Energie</i>
2024	<i>Workshop zur Untersuchung künftiger astronautischer Raumfahrtinfrastruktur für Post-ISS Szenarien, own project – DLR/BMWi</i>
2021 – 2023	<i>SIMSKILL-VR Use of a virtual reality space flight simulator to study astronaut piloting skills, supervision – DLR/BMWi</i>
2021 – 2022	<i>ERIS – European Research Institute for Space Resources – Proposal, contributing partner</i>
2019 – 2022	<i>Biotechnological System Based on Microalgae – Lighting and Sensors Development, own project and supervision – Friedrich and Elisabeth Boysen-Foundation</i>
2019 – 2021	<i>PBR@Earth: Automated Groundwater Treatment Using a Biotechnological System Based on Microalgae, own project and supervision – DLR/BMWi</i>
2020	<i>The Nüwa Concept. A Development Model for a Self-sustainable City on Mars, responsible of Life Support Systems – SONet Network</i>
2020	<i>Feasibility Study on the Use of Microalgae for Air Purification in a House, own project and supervision – SchwörerHaus KG</i>
2018	<i>Algae on the Moon and Mars Ensure Astronaut Survival, own project and supervision – Dubai Future Foundation</i>

2015 – 2018	<i>Technology and Innovation for development of Modular Equipment in SCalable Advanced Life support systems for space Explorations (TIME SCALE)</i> , contributor – EU Horizon2020
2014 – 2020	<i>Photobioreactor ISS Experiment (PBR@LSR)</i> , contributor and supervision (2017 – 2020) – DLR and Airbus Defence and Space
2012 – 2020	<i>Investigation of the Potentials and Feasibility of Hybrid Life Support Systems in Space (Hybrid-LSS)</i> , contributor and supervision (2017 – 2020) – DLR/BMWi

6. PUBLICATIONS (selection, > 70 contributions in journals/congresses)

- Bosch Bruguera M., López Bermúdez S., Detrell G., Ewald R., Spacecraft docking piloting performance assessment by means of virtual reality and eye-tracking at the SIRIUS-21 space analog, 75th International Astronautical Congress, Milano, Italy, 2024
- Detrell G., Salman L., Santaefemia S., Human Spaceflight Specialized Curriculum for Master in Aerospace at TUM, ICES-2024-279, 53rd International Conference on Environmental Systems, Louisville, Kentucky, USA, 2024
- De Micco, Veronica, et al., Plant and microbial science and technology as cornerstones to Bioregenerative Life Support Systems in space, DOI: 10.1038/s41526-023-00317-9, npj Microgravity 9. Jg., Nr. 1, S. 69., 2023
- Detrell, G.: *Chlorella Vulgaris* Photobioreactor for Oxygen and Food Production on a Moon Base—Potential and Challenges, DOI: 10.3389/fspas.2021.700579, frontiers in Astronomy and Space Sciences, 2021
- Detrell G., Helish H., Keppler J., Martin J., Henn N.: From Biofiltration to Promising Options in Gaseous Fluxes Biotreatment, *Chapter 20 - Microalgae for combined air revitalization and biomass production for space applications*, DOI: 10.1016/B978-0-12-819064-7.00020-0, 2020
- Detrell G., Schwinning M., Ewald R.: *An international and interdisciplinary approach on learning how to design a space station*, DOI: 10.1016/j.actaastro.2018.12.009, Acta Astronautica, 2019
- Detrell G., Keppler J., Helisch H., Martin J., Belz S., Henn N., Ewald R., Fasoulas S., Hartstein H., Angerer O.: *PBR@LSR experiment – ready to fly*, IAC-18-A1.7.6, 69th International Astronautical Congress, Bremen, Germany, 2018

7. OTHER PROOFS OF QUALIFICATIONS

2024 – present	Member of the AIAA Life Science & Systems Technical Committee
2024 – present	Member COSPAR German National Committee
2023 – present	Member of the EASN International Scientific Committee
2022	Award <i>Premis DonaTIC</i> from the Catalan Government, special mention in Aeronautics
2021 – present	International Astronautical Conference (IAC) session A1.7 Co-chair/Referee
2021 – 2023	Diversity Officer at the Faculty of Aerospace and Geodesy at the <i>Universität Stuttgart</i>
2021 – 2024	Board member of <i>Women In Aerospace (WIA) Europe, Barcelona</i>
2021 - present	Board member of <i>Yuris Night Deutschland e.V.</i>
2020 - 2022	Scientific Board Member 4 th <i>Symposium on Space and Educational Activities 2022</i>
2019 - present	Invited Member of the Aerospace Working Group in the Industrial Engineering Association of Catalonia (Spain)
2019 - present	Board Member of <i>SONet - The Sustainable Offworld Network</i>
2018 – present	Paper Reviews for several journals and peer-reviewed conferences
2017	Selected project (35 out of 260) of the <i>MBR Space Settlement Challenge</i> , organized by the <i>Dubai Future Foundation</i>
2012	Award: <i>UPC recognition</i> for the activities carried out in 2011
2011	Award: <i>Society of Reliability Engineers Hans Reiche Award 2011</i>

8. PUBLIC OUTREACH (selection, > 50 presentations since 2018)

- STEM Women Congress, *Sobrevivir en Marte*, <https://youtu.be/ad0zSJI3TiY>, 2021
- EETAC – Setmana de la ciència, *Sobreviure a Mart*, <https://youtu.be/fcfBY-kwPpk>, 2021
- Haus der Astronomie, *Überleben auf dem Mars*, <https://youtu.be/Lo-MJYn69yc>, 2021
- SONet Talks, *Surviving in Space*, <https://youtu.be/6holJmF4cWl>, 2021
- WIA-Europe #Women4Space, *Surviving on Mars*, https://youtu.be/Gx6JC_CHVXs, 2021
- TEDxEixample, *Let's learn from Mars*, <https://youtu.be/NvuZJ5qCKLk>, 2020

9. LANGUAGE SKILLS

Catalan		Native Language	English		Fluent (C2)
Spanish		Bilingual	French		Intermediate (B2)
German		Fluent (C2)			