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Lan, Tian

Education

Master of Aerospace Engineering **04/2020 - 05/2024**
Technical University of Munich

Main courses: Rotorcraft Engineering, Aerodynamics, Unsteady Aerodynamics, Aeroelasticity, Applied CFD, Composite Structures, Safety & Certification of Aircraft, Light Weight Structures

Master of Aerospace Engineering (international exchange program) **09/2020 - 02/2023**
Universitat Politècnica de Catalunya (UPC)

Main courses: Spacecraft Design, Architecture of aircraft system, Astrodynamics, English for management.

Bachelor of Aerospace Engineering **10/2016 - 03/2020**
University of Stuttgart

Main courses: Advanced mathematics, Numerical simulation, Thermodynamics, Electrical engineering, Technical Mechanics, Fluid Mechanics, Heat transfer & heat radiation Software engineering

Research

Aerial Tensile Perching and Disentangling Mechanism for Long-Term Environmental Monitoring Applications **05/2023**
Master's Thesis and Conference Paper

- Accepted by IEEE ICRA 2024
- Explored perching technology of aerial robots for environmental sensing.
- Gained fundamental knowledge of drone manufacturing and repairing.
- Designed a multi-modal aerial robot system for long-term environmental monitoring.

FishBAC (Fish Bone Active Camber) Structure Optimization of the Active Camber Morphing and Pitching Rotor Airfoil by 2D-FE Analysis **01/2022**
Semester Thesis

- Investigated the fish-inspired active camber morphing concepts for future helicopter design.
- Identified conflicting requirements for camber morphing concepts from a structural point of view.
- Developed Finite Element structural models of FishBAC and varied structural parameters such as skin pre-tensioning, skin thickness, and spine stiffness.
- Conducted multi-objective optimization on the FishBAC structure in terms of minimal camber deflection deviation and weight.

Characterization of the Contact Angle Influence during Trailing Edge Disintegration of Water on a Flat Plate **09/2019**
Bachelor's Thesis

- Conducted experimental measurements of water droplet disintegration at the trailing edge of a gas-turbine blade to investigate the influence of hydrophobicity, blade surface, and volume flow on the process (High-fogging).
- Prepared samples of glass and plexiglass to investigate the influence of hydrophobicity.
- Characterized the influences of hydrophobicity and volume flow on the disintegration process based on all measurements.

Experience

Student Research Assistant - Environmental Monitoring Robots **Since 05/2024**
Assistant Professorship of eAviation *Munich*

- Research on multimodal framework for environmental perception and monitoring.

Internship - Additive Manufacturing in Aviation **01/2024 - 04/2024**
Lufthansa Technik AG *Hamburg*

- Design and research of aircraft interior parts based on various 3d printing processes.

Structural Engineer - eVTOL **05/2023 - 05/2023**
HORYZN *Munich*

- Pioneer of eVTOL for defibrillator transportation in Germany.
- Responsible for the manufacturing process of eVTOL wing structures.
- Participated in CFRP fabrication and supported other teams regarding structure.

Student Tutor - Material Science **10/2021 - 10/2022**
Chair of Materials Engineering of Additive Manufacturing (MAE) *Munich*

- Mentored and instructed a group of 50+ undergraduate students in Material Science.

Mechnical Engineer - Payload Design **05/2020 - 10/2022**
Scientific Workgroup for Rocketry and Spaceflight (WARR) - Robotics *Munich*

- Explored solar sintering of local soil for lunar habitat construction by a sustainable lunar robot with unique lens.
- Participated in all phases of the project lifecycle, including design, construction, manufacturing, and testing.
- Successfully participated in the IGLUNA 2021 Field Campaign, organized by Swiss Space Office and European Space Agency in Luzern.

Internship - Additive Manufacturing for Satellites **10/2019 - 02/2020**
Fraunhofer Institute for Manufacturing Engineering and Automation (IPA) *Stuttgart*

- Learned the detailed principles and operations of Additive Manufacturing in practice and deeply understood its application.
- Designed and constructed testing prototypes based on fused deposition modeling (FDM) with a novel material.

Student Research Assistant - Thermodynamics **10/2018 - 08/2019**
Chair of Aerospace Thermodynamics (ITLR) *Stuttgart*

- Mentored and instructed a group of 50+ undergraduate students in Thermodynamics.
- University teaching.

Skills

Programming	Matlab, Python, C/C++
CAD	SolidWorks, Fusion360, SiemensNX, Catia, 3D Experience
Additive Manufacturing	Preform (SLS & SLA), UltiMaker Cura (FDM), Bambu Studio
Robotics	Arduino, Mission Planner, Vicon Motion Capture, ROS
Simulation	Abaqus, ANSYS, Altair Hypermesh
Communication	English (Fluent), German (Fluent), Spanish (Beginner), Chinese (Native)

Hobbies

- Alone and joint music making with ErHu, guitar
- Swimming, skiing, running, hiking, and wind surfing
- 3D printing, Arduino projects