



CONTACT

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SKILLS

Navigation & Estimation

6-DoF visual state estimation
Multi-sensor fusion
architectures
Probabilistic state estimation
Visual odometry, SLAM
(3DGS),
Stereo depth estimation
Hyperspectral imaging

Robotics & Systems

ROS2
Sensor data synchronisation
Real-time systems
Computer vision, OpenCV,
Open3D

Mission Operations

Flight control operations
Mission control & console
ops, ICD & interface definition
ECSS standards,
Telemetry analysis
Data management
workflows

Programming

Python, C++, Typescript

Infrastructure

Docker
GitHub Actions CI/CD
RabbitMQ
REST APIs, PostgreSQL,
Practicing Zenoh

LANGUAGES

German [\[B1 Certificate\]](#),
English (native), Hindi
(native)

Annie Bhalla

AUTONOMOUS NAVIGATION . ANALOG ASTRONAUT . MISSION OPS

/ 01 • WORK EXPERIENCE

01/11/2024
– 01/10/2025

Research Student — Master Thesis - DLR-RMC

[Deutsches Zentrum für Luft- und Raumfahrt \(DLR\), Oberpfaffenhofen](#)

- Developed a 6-DoF visual navigation pipeline fusing hyperspectral and RGB-D sensor modalities with 3DGS SLAM for autonomous state estimation in unstructured extraterrestrial terrain
- Built automated evaluation pipeline benchmarking trajectory error across algorithmic parameter sweeps — achieved 42% ATE reduction (6.95 cm → 5.05 cm) over RGB-only baseline, demonstrating systematic approach to estimation performance optimisation.
- Conducted field data acquisition on [Moon-Mars Outdoor Test Site](#) at DLR Oberpfaffenhofen; managed ROS2-based multi-sensor data synchronisation and validation across sensor modalities in unstructured real-world conditions.
- Thesis accepted for presentation at the [International Astronautical Congress \(IAC\) 2026](#).

07/2026
– present

Flight Control Team Member

[Austrian Space Forum — AMADEE-27 analog Mars mission](#)

- Authored Data Management Workflow Definitions and Interface Control Documents formalising operational data and communication interfaces across Flight Crew, Ground Operations, and Mission Support Center teams.
- Defined interface specifications (data type, medium, timing, cadence) following ECSS space engineering conventions for each team pairing.
- Contacts Officer within the Flight Control Team, coordinating real-time information flow between console positions during simulation. (in-training)

01/10/2025
– present

Software Engineer

[Sereact, Stuttgart, Germany](#)

- Improved KPI reliability from 50% to ~95% by developing telemetry and real-time analytics software for 100+ robot stations, enabling performance tracking and data-driven decision-making across locations.
- Designed scalable event-driven telemetry analysis pipelines on RabbitMQ, WebSockets and a microservices architecture, ingesting and evaluating real-time robot telemetry across timezones.
- Built the unified robot cell Human Machine Interface used by operators to monitor and control robots on the floor, single docker build for different stations

01/02/2026
– 08/02/2026

Analog Astronaut (Extra Vehicular Activity Lead - EVAL)

[Aaka Space Studio – Lunar Surface Simulation, India · \[Certificate\]\(#\)](#)

- Led 3 EVAs over an 8-day lunar analog mission at Dholavira terrain, coordinating scientific data collection following mission timelines, risk assessments and procedural checklists.

19/10/2025
– 28/10/2025

Mission Control Officer — Remote Science Support Task Manager

[Austrian Space Forum — World's Biggest Analog Mission, Vienna · \[Certificate\]\(#\)](#)

- Coordinated remote scientific operations and managed data integrity checks across 17 globally distributed habitat analog sites over 8 days.

/ 02 • EDUCATION

04/2023
– 10/2025

MSc Computer Science – Autonomous Systems (1.8) [\[Transcript\]](#)

[University of Stuttgart](#)

Thesis: HyperLoop — Hyperspectral-Assisted Loop Closure in 3DGS SLAM for Planetary Exploration

/ 03 • ACHIEVEMENTS & CERTIFICATIONS

09/2026

4th in challenge, 3rd overall, European Hackathon League Zürich (ETH Agentic Systems Lab), Temporal AI & Anomaly Detection: fine-tuned OpenTSLM (LoRA, Llama 3.2 1B, 8× H200) on ESA satellite telemetry, detecting 11 of 13 anomaly events. [\(Certificate\)](#)

04/2026

Interactive Presentation, International Astronautical Congress IAC 2026 [\(Notification Letter\)](#)

06/2026

Analog Mission Basic Training [Certification](#), Austrian Space Forum

07/2025 – 10/2025

Recipient of DAAD STIBET Scholarship [Certificate](#)

06/2025 – 07/2025

Asclepios Analog Astronaut Selection Program Phase D Candidate (last round) [Certificate](#)