



COSDAC- Collaborative Space Data Centre

A unique data centre and tool set dedicated to the needs of space and advanced system engineering applications. Funded by the UK Space Agency and CFMS, the COSDAC pilot is a fully equipped **digital workshop** for **AI**, **Robotics** and **ConOps** exploration, and development and testing for space missions. COSDAC speeds up development times, increases collaboration, removes the IT burden and enables access to the latest data centre level robotics hardware and software.

COSDAC is delivering a range of **space related applications**. This includes **intelligent terrain classification** of Mars at huge regional/planetary scale, utilising our HPC and AI expertise. COSDAC is also **removing the prior IT blocker** for Space Solar with ready to go virtual machines, enabling them to focus on modelling electromagnetic propagation. It is also demonstrating how multiple people can **collaboratively develop and test robotic systems** in virtual simulation environments for ConOps and CDF activities. Its **flexible** and **adaptable configuration** enables a wide range of use cases.

Example use cases include:

- Deep learning based training and inference for Space data classification- on-board or remote at a huge scale
- Robot in the loop and/or sensor simulation testing
- Dedicated edge based processing board testing
- Specialist, space industry specific HPC enabled digital modelling at scale
- Fleet based robotic system design
- Multi-user virtual collaboration and system integration.

COSDAC enables access to:

Hardware

- High Powered Compute (HPC)
- Sim-to-Edge & Hardware-in-the-Loop testing
- Plug-in Custom Hardware
- Robotics Platform
- NVIDIA Jetson Board

Software

- Large Scale AI & Robotics Space Simulator
- Robotics & AI Ready to Go Virtual Machines

Collaboration

- Multi-party collaboration, shared software tools and hardware
- International digital collaboration
- Secure islands to ensure IP segregation

Physical On-Site Space

- On-site desks and space for robotics testing and validation

Domain Experts

- HPC, Space, Robotics and AI expertise available
- Community of Users