

# DFKI – Robotics Innovation Center

## Spin-In & Spin-Out Activities Related to Space Applications

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# Example: Surface Operations

## Terrestrial



Walking excavator: Special machine to operate in unstructured terrain [1,2]



ASGUARD: Mobile base for autonomous Surveillance of outdoor areas

## Space

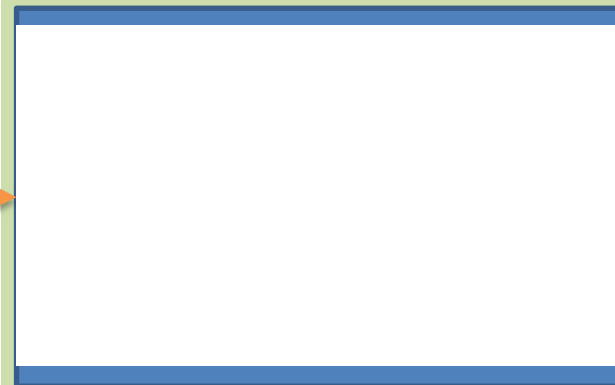
Spin-Back:  
Locomotion Control  
Radiation Hardened Concept

Spin-Out:  
Cooperating  
Robot Team



SherpaTT & Coyote III: Team of Robots to implement a logistic chain for extraterrestrial surface exploration

## Terrestrial



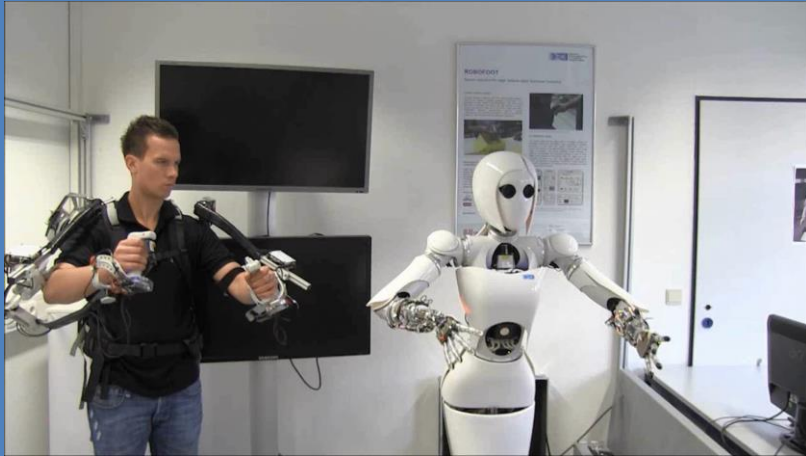
SherpaTT & Coyote III: Team of Robots for cooperative sampling and transport in hazardous waste landfills

[1] <https://www.youtube.com/watch?v=TENTtkb3xkc>, [2] <https://www.youtube.com/watch?v=8qgzgZAoOag>

# Example: Human-in-the-Loop

## Space

Spin-Out:  
Exoskeleton  
Series-elastic actuators  
Dynamic control methods



Exoskeleton & AILA: Operator using upper body exoskeleton to operate an humanoid robot (AILA) in an ISS Scenario (Mock-Up)

## Terrestrial

### RECUPERA REHA

Exoskeleton for upper body robotic assistance



Exoskeleton & stroke patient: Stroke patient using upper body exoskeleton for rehabilitation therapy

# Thank you for your attention!

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