WS#43: Data Spaces for the Development of AI & Robotic Applications

"Opportunities and Challenges for Data Spaces in AI Applications from the End–User's Point of View: Healthcare Robotics domain"

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Blue Ocean Robotics

ERF 2025, Thursday 27th March

PLIADES

"AI–Enabled Data Lifecycles Optimization & Data Spaces Integration for Increased Efficiency & Interoperability"

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101135988

Background: Robot technology in patient handling

Patient handling without robot technology

Patient handling with robot technology

Patient Transfer Rehabiliation Robot

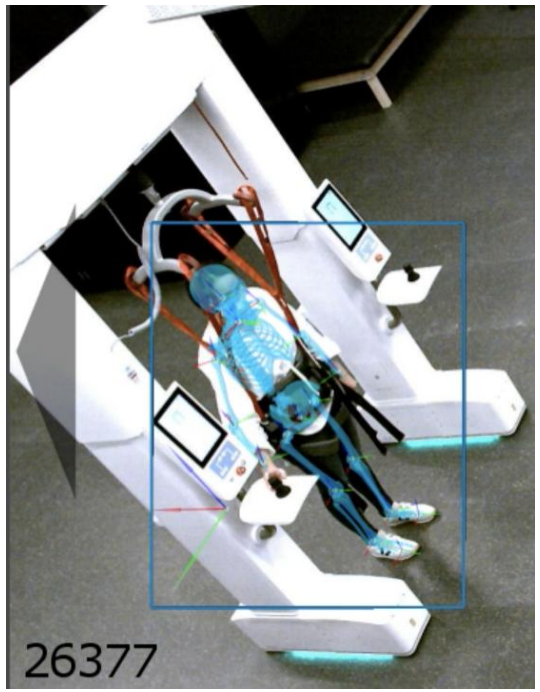
- Improve physical & mental working environment
- Reduce work related injuries
- Reduce sick days
- Reduce waiting time for equipment & staff
- Less wear of staff
- Gait training for faster rehabilitation
- Staff resources for more patient interaction
- Minimize workload during patient transfer
- Minimize the risk of falls
- Reduce risk of shear/pressure ulcer
- Dignity for the patient

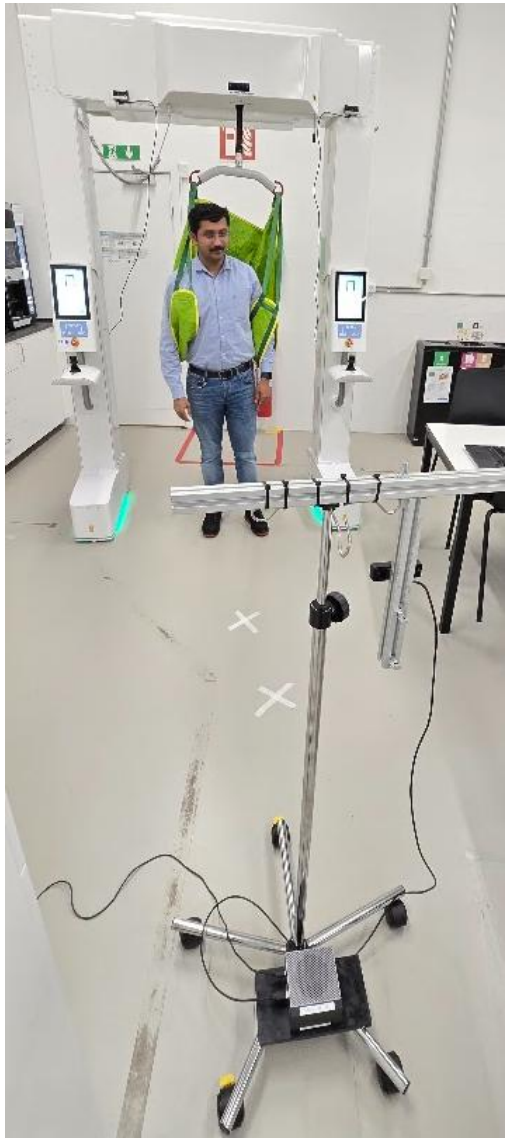
Future HRI Features

- Patient monitoring/diagnosis with AI
- Data collection: Robot suggested rehabilitation program
- Data collection Individual rehabilitation program
- Advanced rehabilitation features
- Patient monitoring
- Basic integrated rehabilitation exercises
- Early mobilization
- Safe mobilization and rehabilitation

PLIADES Healthcare Scenarios

- **Scenario 1:** Gait analysis of patient
- **Scenario 2:** Navigation of robot in hallway





Objectives Use Case Provider Robotics

- Enable seamless HRI by leveraging advanced Deep Learning methods to gather and analyse operational data from assistive service robots.
  - Allows the robot to continuously learn and adapt to the unique needs and behaviors of individual users
  - Enhances the robots' ability to personalize interactions, improve rehabilitation outcomes, and optimize patient or eldercare support over time
- Ensures privacy, security, and traceability of data

Thank you for your attention!

Any Questions?

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Thank you for joining the workshop!

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