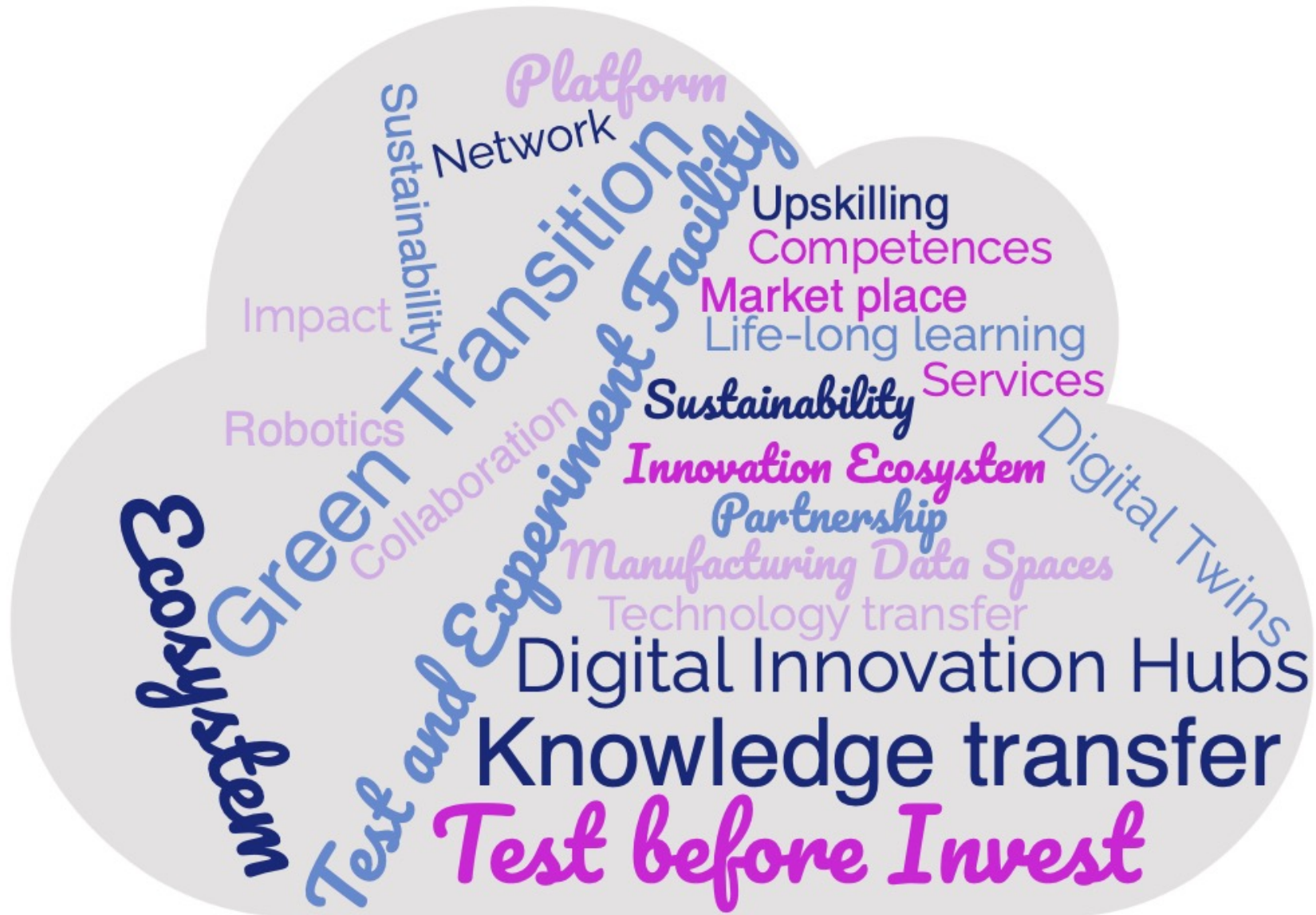


Human Robot Collaboration Pilot Line & RoboLab Tampere

Professori Minna Lanz (minna.lanz@tuni.fi),
Teknisten ja luonnontieteiden tiedekunta



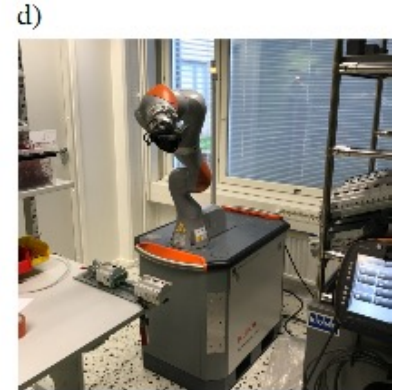
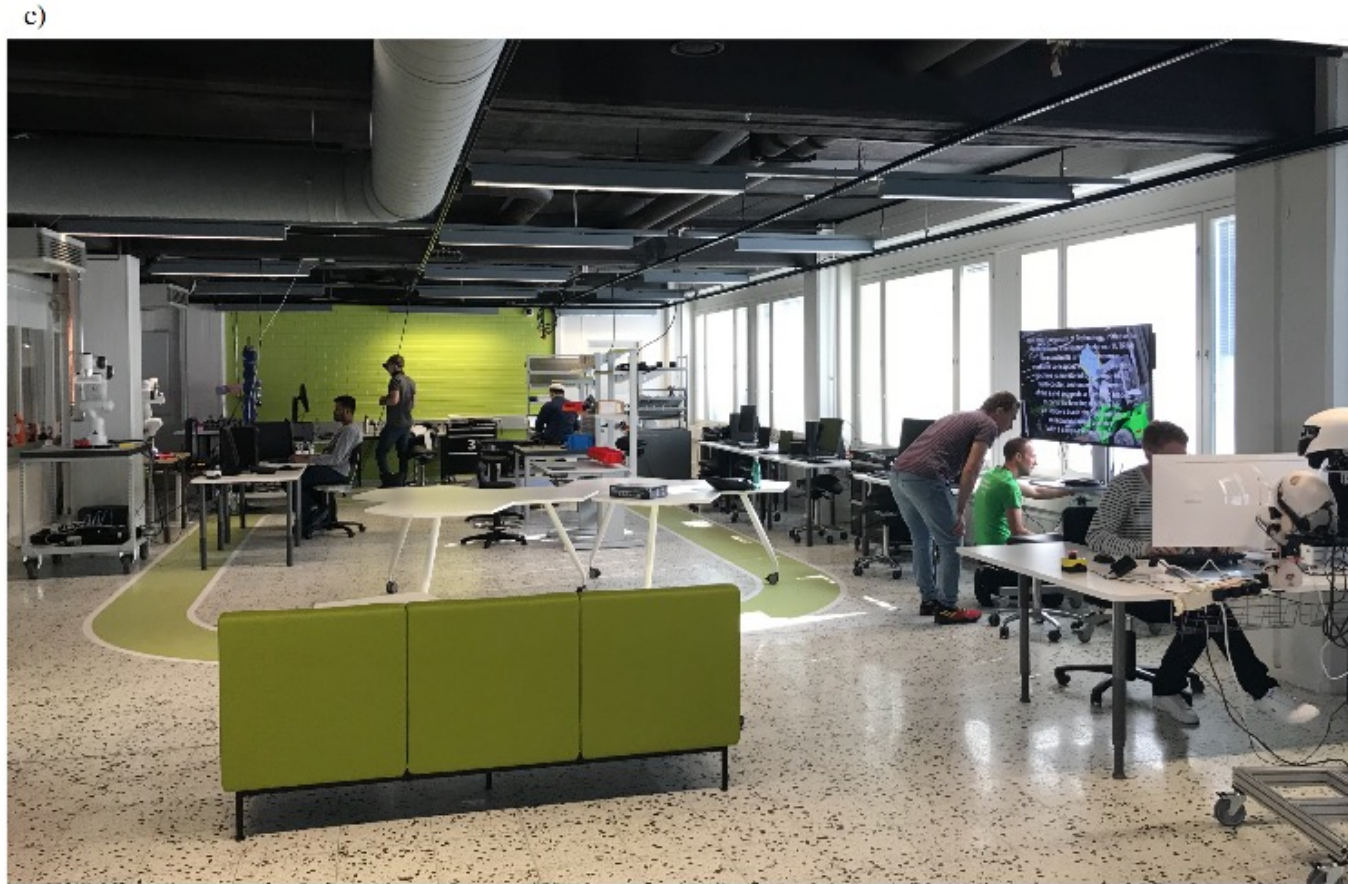


Mitä toivotaan tulevaisuuden alustoilta eli Test & Experiment Facilities (TEF) tai Pilot Line



https://ec.europa.eu/information_society/newsroom/image/document/2020-19/200505_workshop_report_tef_manufacturing_public_version_docx_F247C80E-A301-1BC2-3D35D30D-CA54D35C-3355C-1F

Tampere RoboLab



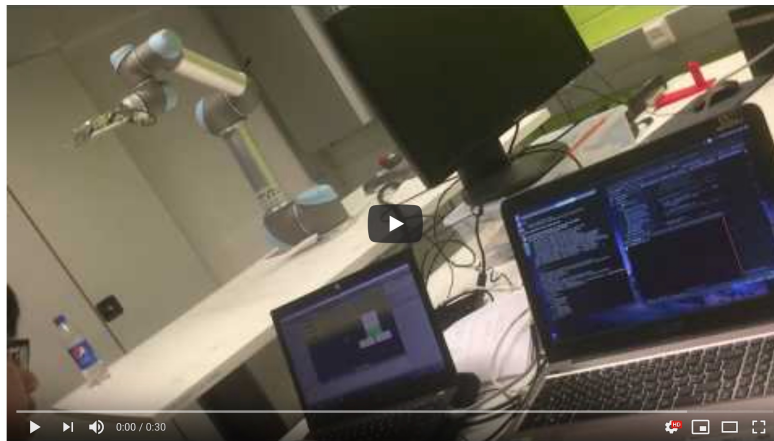
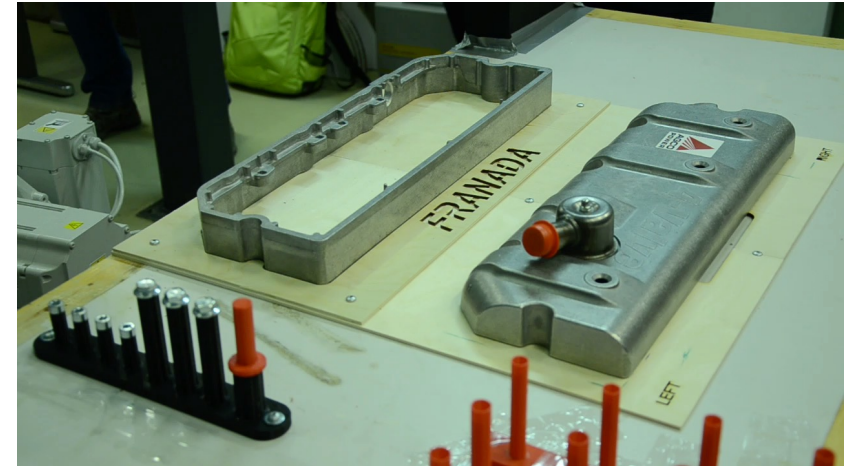
<https://research.tuni.fi/roboLab tampere/>

Tampere RoboLab – Learning Services

Table 2. Learning outcomes

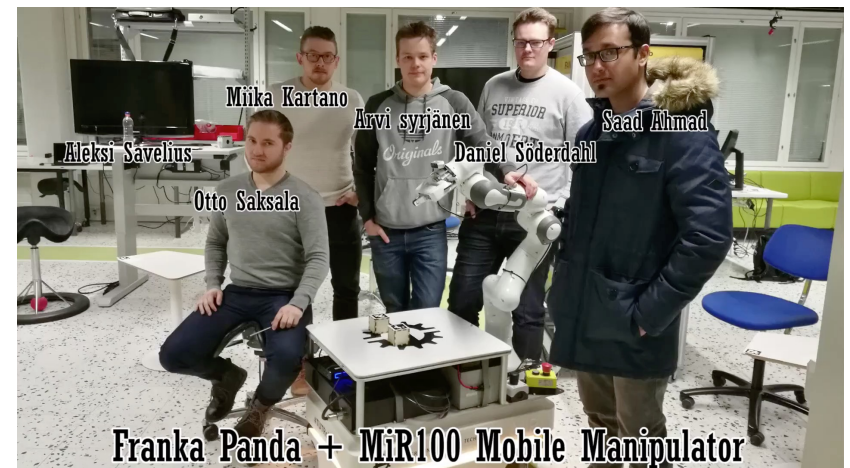
Type of activity	Example	Target group
BSc theses	BSc theses with industrial robotics and signal processing	BSc. Level students
MSc level laboratory courses for Robotics Major, and minor in Industrial Robotics	MSc level education: Phenomena based and highly problem-solving oriented laboratory courses with industrial case problems and modern industry robots	MSc. Level students
MSc theses	Hand movement tracking with depth sensors and motion duplication with robot arm, Learning motion generating dynamical systems from human demonstration, Evaluation of Human-Robot Collaboration (HRC) in light-weight assembly task	MSc. Level students
D.Sc. thesis/academic research	Vision-Based Mobile Manipulation, Vision based safety system in HRC	PhD/D.Sc. level students, Industrial partners
Pre-competitive research	Feasibility testing of HRC capabilities, feasibility test on manipulation of small and flexible parts, Technology transfer	Industrial partners

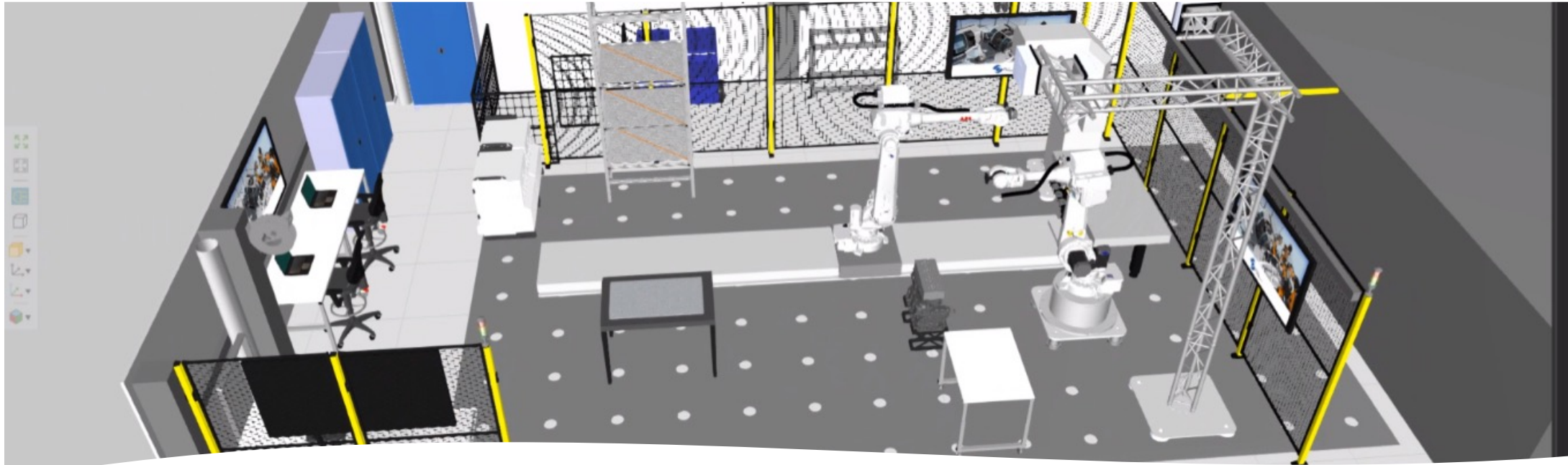
Student work



Human and Robot Interaction using HoloLens on UR5 robot

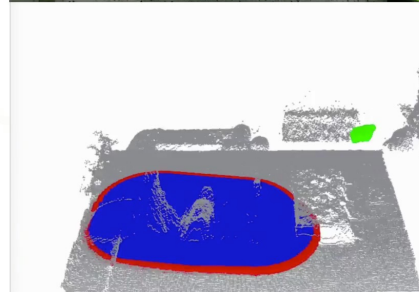
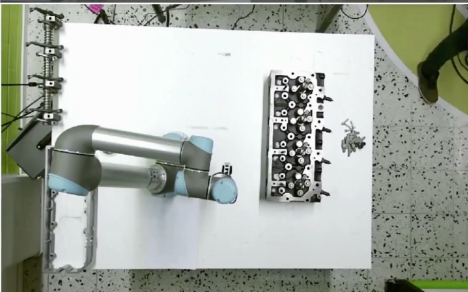
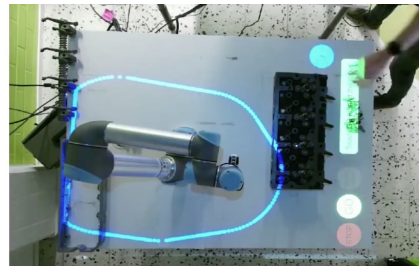
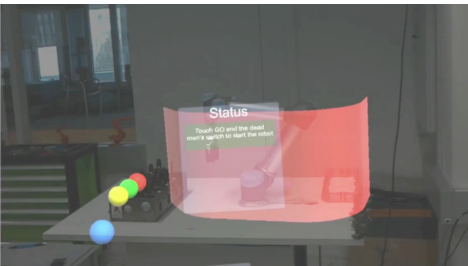
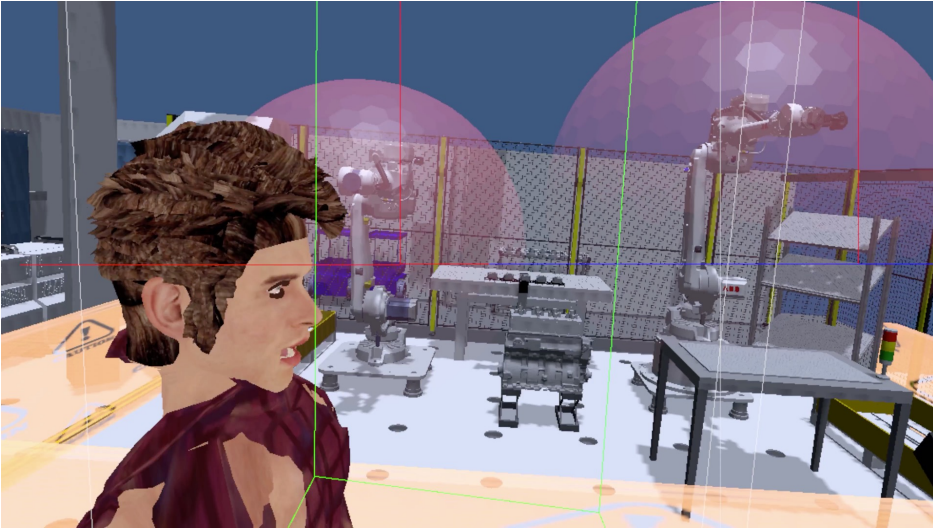
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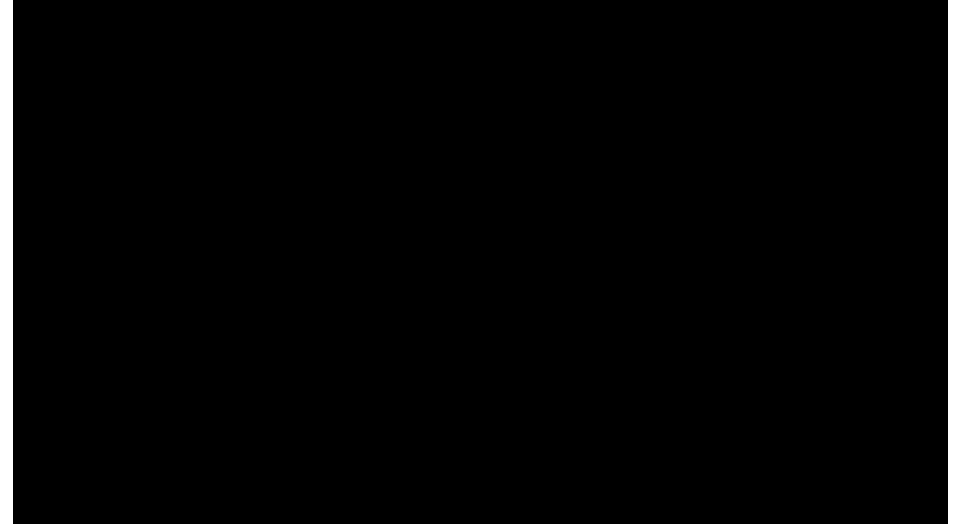


Testing environment @TAU HRC Pilot Line

- Human-Robot Collaboration Pilot Line for academy-industry collaboration
- Fully reconfigurable robotics lab for Mid&Heavy-duty assembly applications
- Full AR/VR capabilities
- Safety:
 - ABB Safe Move, Safety Eye, Laser Scanners, Light curtains
 - House-build 3D depth sensor based safety system
- <https://research.tuni.fi/hrc-pilotline/>



Safety lines for larger robots (complementary information)



Movable User Interface for reconfigurable productions





Kiitos!

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