VIRTUAL PROTOTYPING & HUMAN MODELLING LAB

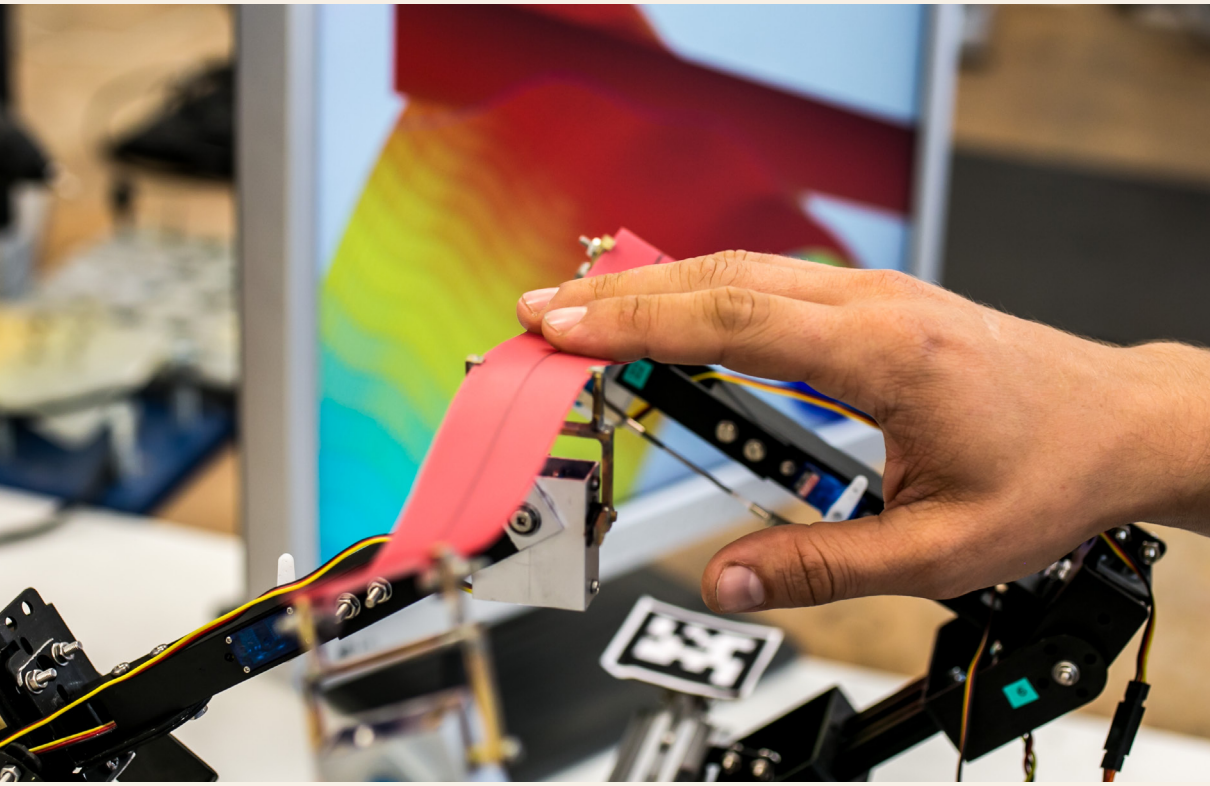
State-of-the-art VR/AR, haptics,
3d human modeling technologies

The Virtual Prototyping & Human Modelling Lab is a research and teaching laboratory equipped with state-of-the-art technologies and tools for Virtual and Augmented Reality, Haptics and Digital Human Modelling. The Lab is focused on developing multisensory interactive virtual prototypes for design review, simulation and testing purposes, real-time rendering on high performing workstations, modelling of human body and organs for ergonomics, human-machine interaction, bioengineering and medicine.

INSTRUMENTS & FACILITIES	
IMMERSIVE DISPLAYS	Cyviz VIZ3D
	Large screen (3,4x2,1m) with Barco F80-4K12 4K UHD stereoscopic projector
HEAD MOUNTED DISPLAYS FOR AUGMENTED REALITY	Microsoft HoloLens 1&2
	Magic Leap 1
HEAD MOUNTED DISPLAYS FOR VIRTUAL REALITY	Oculus Quest 2
	HTC Vive Pro Eye
	Varjo VR1
MOTION TRACKING SYSTEMS	VICON 460
	A.R.T. Tracking System
	OptiTrack V100:R2
	OptiTrack V120:Trio
	Microsoft Kinect 1&2
	UltraLeap Leap Motion
BIO SIGNAL ACQUISITION SYSTEMS	ProComp Infiniti
	LWT3 Raw Power 0.9 surfaceElectroMyoGraphy (sEMG)
	EMOTIV EPOC ElectroEncephaloGram (EEG) HeadsetE
	ANTneuro eego sports 128 pro ElectroEncephaloGram (EEG) and ElectroMyoGraphy (EMG) headset
HAPTIC SYSTEMS	Haption Virtuose 6D35-45 (6 DOF device)
	MOOG Haptic Master (3 DOF robot)
	3D Systems PHANToM desktop (6 DOF device)
	Manus VR (glove)
	WeArt Touch Diver (wearable)
	Ultraleap Stratos Explore (mid-air haptics)

EYE–TRACKING SYSTEMS	Nvisor ST HMD
	Pupil labs Core
	Tobii Pro Glasses 3
EQUIPMENT FOR PHYSICAL PROTOTYPING	Ultimaker S3 (FDM 3D Printer)
	Utimaker S5 (FDM 3D Printer)
	Delta Wasp 4070 (FDM 3D Printer)
	Formlabs Form 3B (SLA 3D Printer)
	Laser Engraver and Cutter
IN–HOUSE DEVELOPED SYSTEMS	Multi vehicle virtual simulators (car, excavator)
	Spatial Augmented Reality (SAR) system SPARK
	Multi-camera recording system for design activities monitoring

ACTIVITIES	
INTERACTIVE VIRTUAL PROTOTYPING	Product design review
	Multisensory virtual prototypes
	Interactive prototypes of industrial products
	Haptic interaction with virtual products
MONITORING AND MAINTENANCE	Augmented Reality for diagnostic and prognostic
	Augmented Reality for diagnostic and prognostic
	Haptic-based simulation and training of maintenance operations (assembly/disassembly)
DIGITAL HUMAN MODELLING	3D models of organs or systems from .dicom files
	VR/AR applications for diagnosis/simulations of surgeries, prosthesisdesign
	VR/AR for ergonomics, human-machine interaction
	3D segmentation



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