Vision Systems for Robots

Advancing Automation: Innovations in 2D and 3D Imaging for Robotic Vision

Workshop topic

In an increasingly digitalized world, vision systems for stationery and mobile robots open up revolutionary possibilities in automation. From precise object recognition to autonomous navigation to human-robot-interaction – these technologies are a key driver for innovative robotics applications in industry.

The workshop is dedicated to the current developments, challenges, and application areas of vision systems. Experts and practitioners will exchange their knowledge of modern image processing technologies, machine learning, and their integration into robot platforms. Topics discussed include the optimization of recognition algorithms, sensor fusion, and their impact on the productivity and flexibility of industrial processes.

The goal of the workshop is to connect science, industry, and practitioners to jointly shape the future of robotics with vision systems. Participants will gain valuable insights into the state of the art and learn best practices for implementing these technologies in various application areas.

Date / Location

Date:	9. Sept. 2025
Duration:	10.15 a.m. – 6 p.m.
Location:	Fachhochschule Graubünden, Pulvermühlestrasse 57, 7000 Chur

Target audience

This workshop will be a forum for participants from industry and research to share their experiences and discuss challenges and perspectives of current and future applications.

Cost

This workshop is free of charge

Registration compulsory

Registration link, Registration Deadline: 29. Aug. 2025

Language

English preferred

Organized by the University of Applied Sciences of the Grisons, University of Applied Sciences Eastern Switzerland, Swissphotonics and Swissmem Photonics Booster

Time	Presentation & Topic
10:15 h	**Registration, Welcome Coffee**
10:45 h	**Welcome to the University of Applied Sciences of the Grisons** Gian-Paolo Curcio, FH Graubünden
11:00 h	**Introduction to the Workshop** Christoph S. Harder & Christian Erik Thöny
11:10 h	**Vision Systems for Robots, Organizational remarks, Lab tour** Udo Birk, FH Graubünden
11:30 h	**Lab Tour FHGR**
12:30 h	**Lunch, 1 h**
13:30 h	**Uncrewed Surface Vehicle for Underwater Monitoring of Aquatic Plants** Manuel Schlegel, FH Graubünden
13:45 h	**Advanced Camera Technologies Shaping the Future of Robotic Vision** Peter Schwider, Photonfocus
14:00 h	**Advanced Visual Perception for Articulated Robotic Systems and Environmental Mapping** Lucas Falch, FH OST
14:15 h	**How the Next Generation TOF Imager enhances Robotic Vision** Cengiz Küpçü, Espros
14:30 h	**Panel Discussion / Q&A Session 1** with Manuel Schlegel, Peter Schwider, Lucas Falch & Cengiz Küpçü
14:50 h	**Coffee Break, 30 min**
15:20 h	**Laser-Assisted Robot-Guided Cartilage Regeneration** Michael Sommerhalder, University of Basel
15:35 h	**Laser Illuminators for Robotics** Julien Boucart, Coherent
15:50 h	**Assistive Robots for Healthcare** Roland Siegwart, ETH Zürich
16:05 h	tbc
16:20 h	**Panel Discussion / Q&A Session 2** with Michael Sommerhalder, Julien Boucart, Roland Siegwart
16:40 h	**Opportunities for innovative forces: Engineers and Professors** Christoph S. Harder, Swissphotonics
16:50 h	**Call for Radical innovation** Christian Erik Thöny, Swissmem Photonics / Photonics Booster
17:00 h	**Networking Apéro**