



## Robotics in Healthcare – current uses and future challenges

Robots are transforming healthcare in operating rooms, clinical settings, and even research laboratories. By automating manual, repetitive, and high-volume tasks, they empower healthcare professionals and scientists to focus on strategic work and direct patient care. As robotic technologies evolve, their autonomy will increase, eventually allowing them to perform certain tasks independently. This shift promises to revolutionize healthcare.

Several public funded projects and studies are currently conducted at ETH Zurich, University Hospital Zurich, Balgrist University Hospital, ZHAW as well as in companies to accelerate innovations in robotics for healthcare.

Discover how service robots are transforming healthcare operations by streamlining tasks for doctors, nurses, and staff. Explore their current applications in delivery, logistics, and patient assistance. We'll discuss both the exciting benefits and the challenges to integration, shaping the future of this transformative technology.

This event is open to experts from hospitals and the healthcare sector. Participation is free of charge, but registration is required:

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*Subject to short-term changes*

14:00	Welcome	Katrin Reschwamm, EU GrantsAccess
14:10	Project Harmony	Lionel Ott, ETH Zurich
14:30	Harmony – perspective of USZ and IDMIND	Paulo Alvito, CEO IDMIND, Jordy Janson USZ
14:50	Shapeshifting Robot - University Twente	Associate Professor Dr. Khiet Truong, UT
15:10	Robots as service providers: insight into current application projects from an organizational and user perspective	Dr. Nicole Gerber + Dr. Karin Diez, ZHAW Expert Group Hospitality & Service Management
15:30	Coffeebreak – Interaction with the robots	
16:00	FAROS - Intuitive Multisensory Robotics for Spine Surgery	Dr. Sc. ETH Fabio Carrillo, Balgrist, Head of OR-X Research Unit
16:20	HERO21 – UV light disinfection	USZ Facility Services
16:40	Panel discussion – Challenges for using robots in hospitals	Paulo Alvito, Fabio Carrillo, Yulia Sandamirskaya (ZHAW), Jordy Janson, Bartlomiej Stanczyk (ACCREA)
ca. 17:00	Apero - Networking	

Date: 13. June 2024, 14:00 – 18:00

Place: Schmelzbergstrasse 12, 8091 Zürich. Lecture Hall PATH D22

The event is free of charge but registration is required:

<https://tinyurl.com/48tr8rr5>

## The Projects

[HARMONY](#) will develop assistive robotic mobile manipulation technologies for use in hospital environments targeting two use cases: 1) the automation of on-demand delivery tasks around the hospital and 2) the automation of bio-assay sample flow. These highlight existing processes where there is a need for fast, reliable and flexible automation to undertake the dull and repetitive tasks that are currently conducted by over-qualified staff.

[FAROS](#) integrates advanced multisensory technologies and artificial intelligence to develop autonomous robotic systems, targeting enhanced precision and functionality in surgical procedures. FAROS' core innovation lies in its approach to surgical robotics, prioritizing functional accuracy over traditional metrics like geometric precision. By harnessing a combination of ultrasound imaging and, auditory and haptic feedback, the project aims to enable robots to autonomously perform surgical tasks with a level of precision and adaptability previously unattainable. This approach facilitates a closer emulation of surgeon-like behavior, emphasizing the importance of functional outcomes in surgical success.

## The Companies & Institutes

Founded in 2000, [IDMind](#) is based in Lisbon (PT) and specializes in creating robots from scratch. Each robot features and interactions are customized to the client/user needs. The company business is mainly in the markets of social robots, service robots and remote inspection, either providing complete robot solutions or electronics design and system integration for existing hardware platforms. IDM is a member of euRobotics AISBL and SPR (Portuguese Robotics Society).

The [ZHAW Hospitality & Service Management Expert Group](#) focuses on stakeholder-centric management of services. The digital transformation and robotization of non-medical services play a crucial role in the “smartification” of healthcare organizations. We therefore research and develop this topic with a holistic and interdisciplinary approach.

The [Autonomous Systems Lab](#) was founded in 1996 at EPFL Lausanne. Since 2006, it has been part of ETH Zurich (IRIS) and is run by Prof. Roland Siegwart. The lab creates robots and intelligent systems that can autonomously operate in complex and diverse environments which can act on ground, in air and in water. Research focus is on novel methods and tools for perception, abstraction, mapping and path planning.

The [Balgrist University Hospital](#) is addressing the needs of patients with musculoskeletal issues. Contributing to the evolution of musculoskeletal medicine, we identify medical problems and translate them into scientific questions, which are addressed through our research groups. Subsequently, we translate these findings into practical applications, ensuring evidence-based care for our patients. Our 'physician scientists' - doctors who are not only clinically proficient but scientifically engaged and trained - collaborate closely with our team of scientists, engineers, and start-ups to devise innovative solutions to patients' problems.

The [University Hospital Zurich](#) is open to everyone every day and provides medical primary care and cutting-edge medicine at various locations in Zurich. We leverage our academic knowledge advantage to solve a wide range of health problems: close to the people, highly specialized, and at the forefront of research. Every year, we treat around 38,000 inpatients and record over 800,000 outpatient visits across 40 clinics and institutes. Our staff ensures comprehensive and individual medical care across specialties. With around 900 hospital beds and nearly 300,000 days of care, the USZ is one of the largest hospitals in Switzerland.

