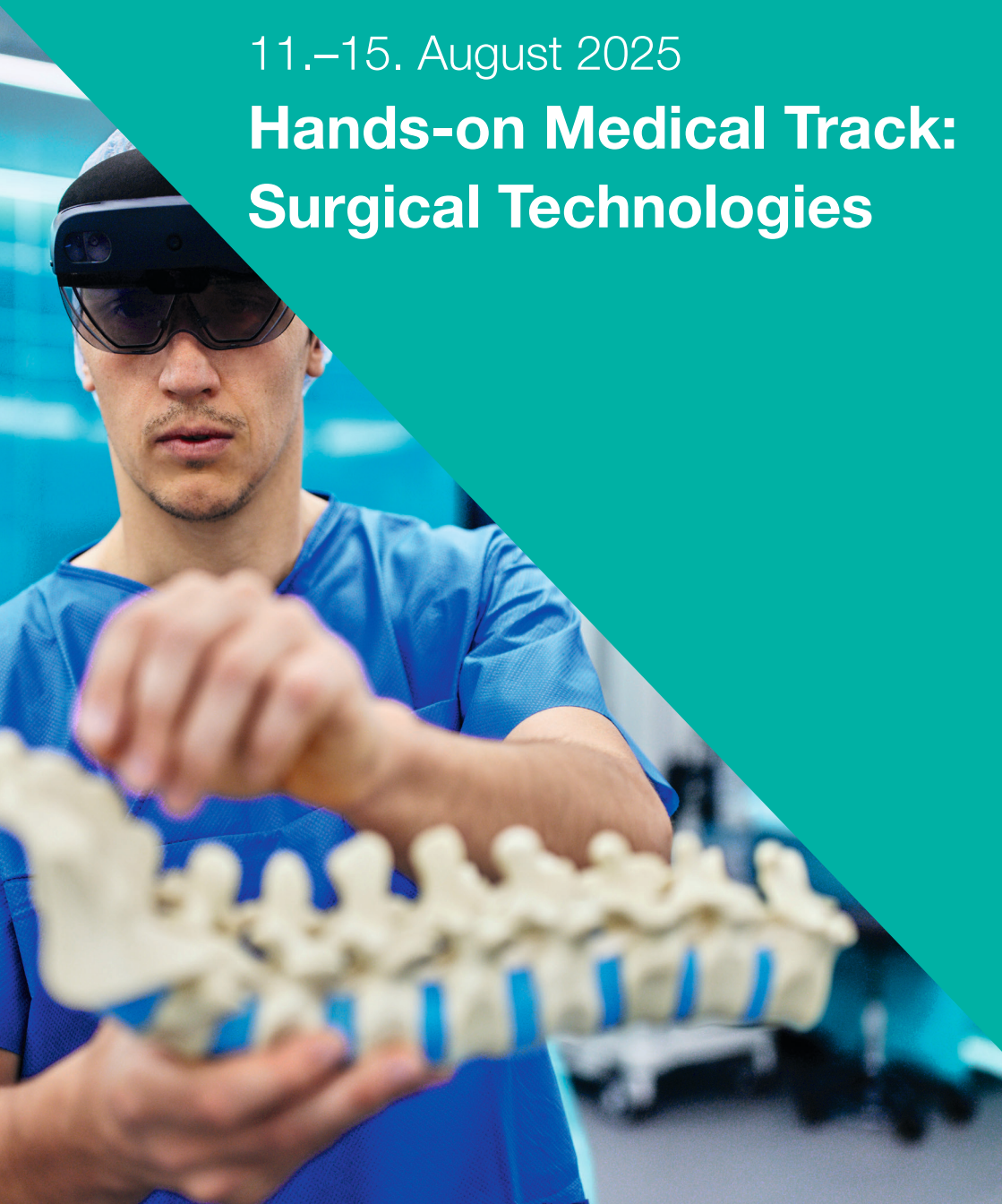
OR-X
Translational
center for surgery

11.–15. August 2025

# Hands-on Medical Track: Surgical Technologies



## Discover the Future of Orthopedic Surgery

Get acquittance with cutting-edge surgical technologies in a unique interdisciplinary setting.

The Hands-On Surgical Training Track of MARSS2025 offers medical students and professionals an intensive and immersive introduction to computer-assisted surgery, medical augmented reality, robotics and AI in the context of commercially available and cutting-edge surgical technologies

Participants will gain hands-on experience at various dry and wet lab stations within OR-X, supported by senior surgeons and expert instructors. Highlights include two live surgeries on human cadaveric specimens and a demonstration of endoscopic spine surgery on synthetic models.

In addition to the practical training, participants are encouraged to attend joint lectures, keynotes, and workshops alongside engineers, researchers, and industry experts. They will also have the opportunity to join an interdisciplinary mini-hackathon, where clinical needs inspire collaborative innovation across medicine and technology.

## Learning Goals

- Understand core principles of surgical technologies and their clinical relevance
- Get familiar with navigation systems, endoscopy towers, robotic platforms, and augmented reality tools
- Gain hands-on experience with advanced surgical technologies in structured dry- and wetlabs
- Collaborate across disciplines and explore practical solutions to current clinical and technological challenges

**Course supporters:**

Balgrist Universitätsklinik

Technische Universität München

Universität Zürich[UZH]

ETH AI CENTER

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X23D

## Organizers & Instructors

MARSS2025 is an international event that brings together leading professionals from clinical practice, research, industry, and technology to shape the future of computer-assisted surgery and medical augmented reality.

The goal of the event is to foster interdisciplinary collaboration, explore new technological developments, and translate innovation into tangible surgical applications.

MARSS2025 is organized by a renowned consortium of leading academic and clinical institutions:

- Prof. Dr. Philipp Fürnstahl (University of Zurich)
- Prof. Dr. Mazda Farshad (Balgrist University Hospital)
- Prof. Dr. Nassir Navab (Technical University of Munich)
- Prof. Dr. Marc Pollefeys (ETH Zurich)
- Dr. Matthias Seibold (University of Zurich)
- Dr. Fabio Carrillo (OR-X & Balgrist University Hospital)

The Hands-On Medical Track is a key element of the program, offering participants with a medical background the opportunity to explore and work with cutting-edge surgical technologies in a high-fidelity, preclinical environment.

This track is designed and led by the OR-X Translational Center for Surgery, under the scientific and organizational responsibility of Dr. Fabio Carrillo.

## Enhance Your Surgical Skill - Sign Up Today

Register for the course on our website or directly via QR code until the 15. July 2025.

**Location**
Balgrist University Hospital
OR-X
Forchstrasse 340
8008 Zurich, Switzerland

**Certification**
The hands-on medical track will be accredited by swiss orthopaedics

**Course fee**
CHF 700.- for 8-day program incl. live surgeries, lectures, catering, certificate, dry- & wetlabs

**Diversity Support**
Selected Free Registration Awards will be granted to applicants with limited financial support, with a focus on promoting gender and regional diversity.

**Faculty**
PD Dr. med. Christoph Laux
Dr. med. Franziska Altorfer

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## Program

### Technology sessions

**Lectures & Keynotes**

Surgical technologies, medical AR and surgical data science

**Hackathon Project**

Development of medical technology projects on surgical use cases, working on a multidisciplinary group

### Wetlab sessions

**Endoscopic Spine Surgery**

Live ex-vivo human surgery by faculty, showcasing the surgical techniques and challenges of endoscopic systems

**Open Spine Surgery**

Live ex-vivo human surgery by faculty, showcasing the surgical techniques and challenges of open spine surgery

**Hands On: Station 1**

AI-based Navigation: Pedicle screw placement with expert guidance using the AI-based navigation of X23D technology

### Drylab sessions

**Hands On: Station 2**

Augmented Reality Navigation: Introduction to AR-based planning with Medacta's NextAR system on synthetic bone models.

**Hands On: Station 3**

Spine Endoscopy Demo: Introduction to endoscopic spine surgery with live demo and hands-on trial for participants

**Hands On: Station 4**

Robotic-Assisted Surgery: Hands-on introduction to robotic systems (ROSA, CORI) for total knee arthroplasty (TKA)

**Hands On: Station 5**

Surgical Approach with Mixed Reality: 3D-guided visualisation of orthopaedic approaches using mixed reality tools.

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