

Press release:

Augmented reality world premiere: Pioneer study with holographically navigated surgery on the spine

Zurich, 25 June 2020 – At Balgrist University Hospital, for some years a team of experts from the fields of research, engineering and surgery have been looking at the possibility of augmented reality (AR) to assist with operations on the spine. Imaging data on AR glasses should soon make orthopedic operations more efficient, precise, and safer for the patient. Balgrist University Hospital is laying the foundations for this with the first clinical study of its type in the world.

The study, which was approved by Swissmedic, is being carried out as part of Zurich University Medicine's SURGENT (Surgeon Enhancing Technologies) Flagship Project. Together with their technology partner, Microsoft, Balgrist ROCS (Research in Orthopedic Computer Science) and Incremed, a university start-up supported by Balgrist Beteiligungs AG, are currently testing AR-based surgical navigation in orthopedics. "In orthopedics, augmented reality is the key to creating new standards for carrying out precise patient-specific surgery. Thanks to the cooperation between the University Zurich, the University hospitals and the ETH, Zurich is at the cutting edge globally," says Prof. Dr. med. Mazda Farshad, Head of the Flagship Project and Chief Medical Officer of Balgrist University Hospital.

In the first study of its type to be carried out anywhere in the world, complex surgical operations on the spine will be performed with or without holographic navigation, following a randomization procedure. The results of the initial phase are expected to be available in autumn 2020. A comparison of the groups should provide the basis for an important step towards bringing AR technology from the research laboratory into operating theatres across the world. Prof. Philipp Fürnstahl, Head of ROCS at Balgrist, sees it as "a prominent milestone on the way towards orthopedics shaped by computer technology, with the goal of allowing fully digitalized treatment." And Marianne Janik, CEO of Microsoft Switzerland, adds "Cooperation with Balgrist University Hospital shows that augmented reality and artificial intelligence can already support and even enhance human abilities and expertise. We are proud that our technology meets the very high quality requirements and that we can contribute to this pioneering work."

Benefits for patients

3D images of the affected anatomy are generated on the basis of CT scans and displayed directly in the surgical field during the operation. Surgeons can see the patient's 3D anatomy using AR glasses. The AR navigation software guides each step of the operation. For example, it shows the exact placement of a screw at the correct site and the appropriate angle, and verifies the accuracy. In addition to the precise positioning of implant components, rod implants can be measured and thus individually dimensioned. This allows an enhancement of the surgeon's perceptive senses.

For further information, contact

Prof. Dr. med. Mazda Farshad, Balgrist University Hospital

Prof. Dr. Philipp Frnstahl, Balgrist University Hospital

Dr. sc. ETH Till Bay, Incomed AG

Via Franziska Ingold, Head of Communications, Balgrist University Hospital

+41 44 386 14 15

kommunikation@balgrist.ch

About Balgrist University Hospital

Balgrist University Hospital is a highly specialized center of excellence for the diagnostic work-up, treatment, and follow-up care of damage to the musculoskeletal system. Interdisciplinary services combine the fields of orthopedics, paraplegiology, rheumatology and physical medicine, sports medicine, neuro-urology, chiropractic, radiology, and anesthesiology.

The broad spectrum of interlinked medical treatment is complemented by nursing care, social and psychological counselling, legal advice, and integrated measures for rehabilitation and return to work. All these activities aim to provide our patients with the best possible support.

Balgrist University Hospital and the Balgrist Campus set internationally recognized standards in orthopedic research and education.

The privately owned Balgrist University Hospital is operated by the Balgrist Association.

Balgrist University Hospital

Forchstrasse 340

8008 Zurich, Switzerland

Tel +41 44 386 11 11

www.balgrist.ch

About Incomed AG

Incomed, founded in 2018 as a university start-up by Balgrist Beteiligungs AG, is an ISO 13485-certified medical technology company with its headquarters in Zurich. The interdisciplinary team of more than 20 experts from information technology, medicine and design are developing the use of augmented reality for patients. Incomed applications are using augmented reality and machine learning to revolutionize medical diagnosis and intervention in orthopedics.

Incomed AG

Lengghalde 8

8008 Zurich, Switzerland

Tel +41 44 552 52 62

www.incomed.com