

# Reinventing Bone Surgery

## From Planning to Execution of a Hard-Tissue Cut

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Cutting bones is one of the oldest medical procedures performed to human patients. Thanks to the high mineral content of bone we have archaeological evidence of skull trepanation dating back more than 10.000 years. Despite the rapid development of surgical instruments over the last 200 years, the fundamental mechanism of bone cutting has not changed ever since.

In this talk, I will show you how researchers of the flagship project MIRACLE (Minimally Invasive Robot-Assisted Computer-guided Laserosteotomy) are working on laser technology to reinvent bone surgery. The MIRACLE project not only reinvents the way hard tissues are being cut but also works on novel concepts to plan and visualize these surgical interventions in virtual and augmented reality environments.