

Bio-Inspired Robots for MEDicine-Laboratory (BIROMED-Lab)

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Minimally Invasive Robot-Assisted Computed-guided Laser osteotomy (MIRACLE)

Robotic Platforms for Minimally Invasive Surgery

Force-sensitive Endoscope Tip

Teleoperation Interface

Flexible Robotic Endoscope

Robotic Endoscope for Laserosteotomy

Robot-Assisted Micro-Manipulation System

Gait Rehabilitation

3-D Body Weight Support System (The FLOAT)

Optical Tracking System (Vicon)

Virtual Reality Floor Projection

Synchronous Data Exchange

Real-time Motion Onset Recognition

Arm Rehabilitation

Teach

Mimic

Virtual Rowing Trainer

Oar rotation

Oar length

Oarlock height

Blade area

Simulated water

$$\vec{F}_{drag} = \frac{1}{2} \rho C_d A_d(\varphi, \delta) \vec{v}^2$$

$$\vec{F}_{lift} = \frac{1}{2} \rho C_l A_l(\varphi, \delta) \vec{v}^2$$

ρ : water density

Bruxism Prevention

Teeth grinding

Teeth clenching

Awake bruxism

Sleep bruxism

Sounds

In-ear device

biofeedback

Vibrations

Selected Publications

- [1] G. Rauter, N. Gerig, R. Sigrist, R. Riener, and P. Wolf, "When a robot teaches humans: Automated feedback selection accelerates motor learning," *Science Robotics*, vol. 4, no. 27, p. eaav1560, Feb. 2019.
- [2] M. Eugster, P. Cattin, A. Zam, and G. Rauter, "A Parallel Robotic Mechanism for the Stabilization and Guidance of an Endoscope Tip in Laser Osteotomy," in *IEEE Conference on Intelligent Robots and Systems (IROS)*, pp.1306-1311, 2018.



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