Joint Master in Biomedical Engineering

Universität Basel

Department of Biomedical Engineering

University of Applied Sciences and Arts Northwestern Switzerland
School of Life Sciences

WHAT IS BIOMEDICAL ENGINEERING?

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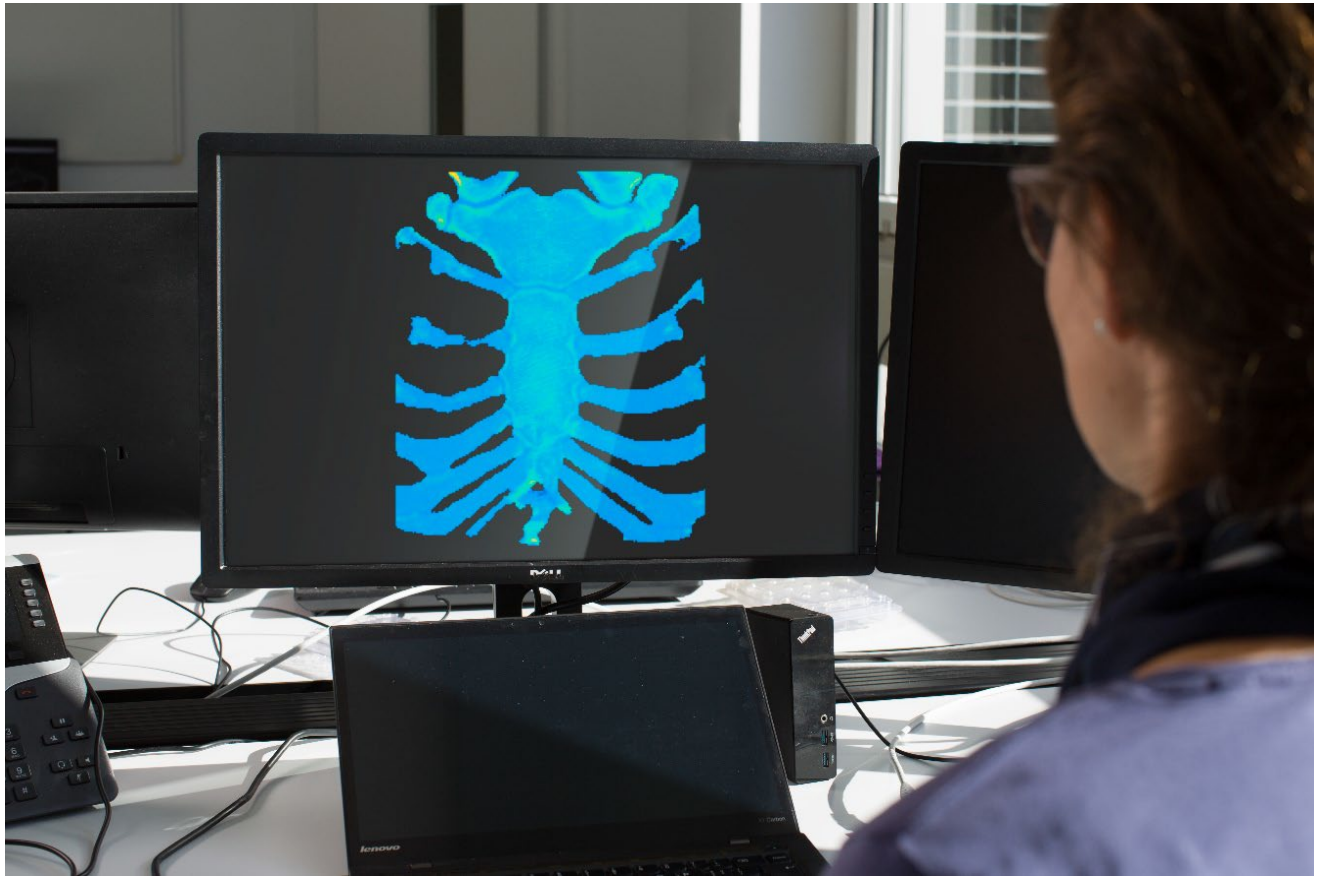

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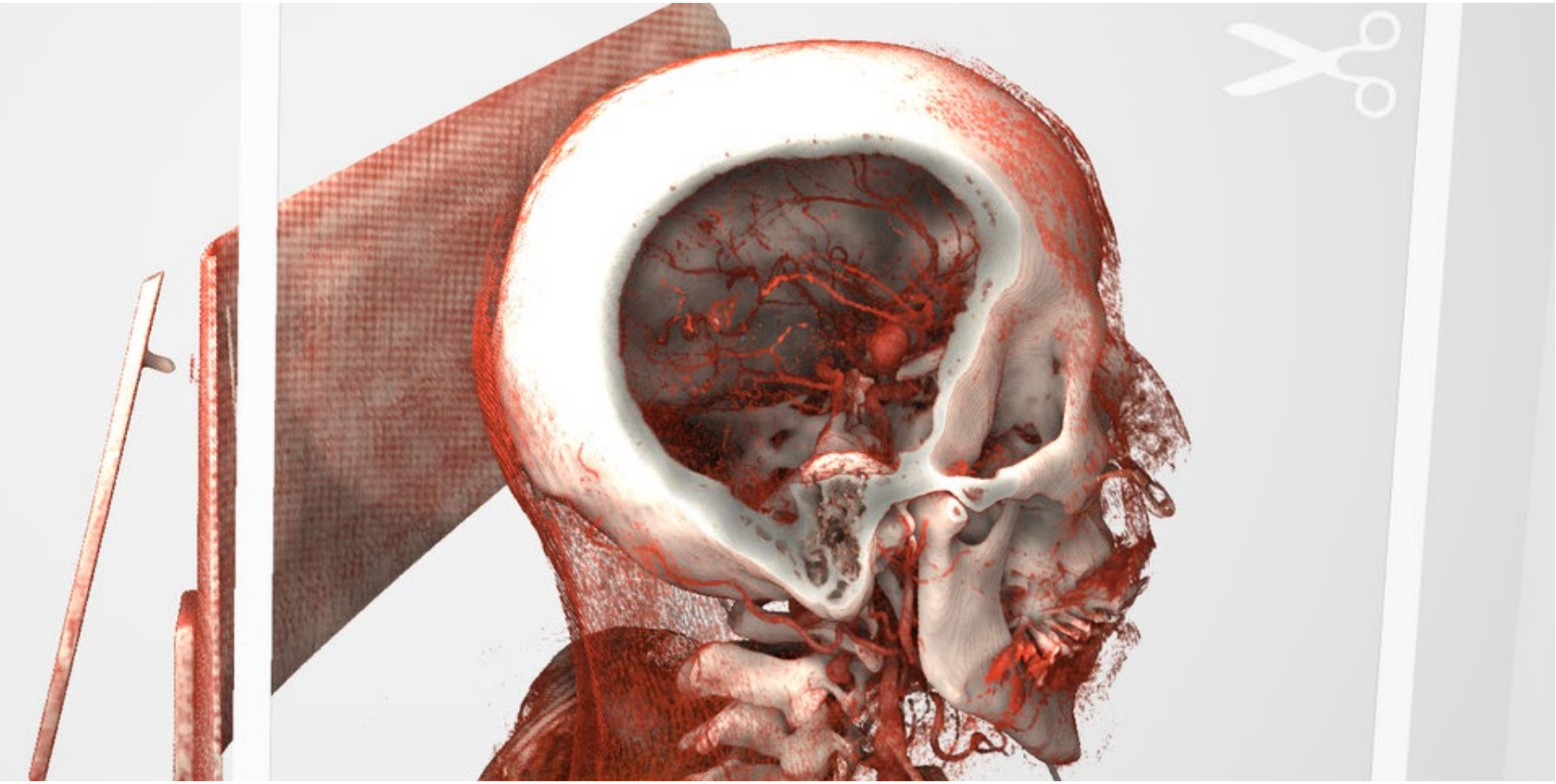

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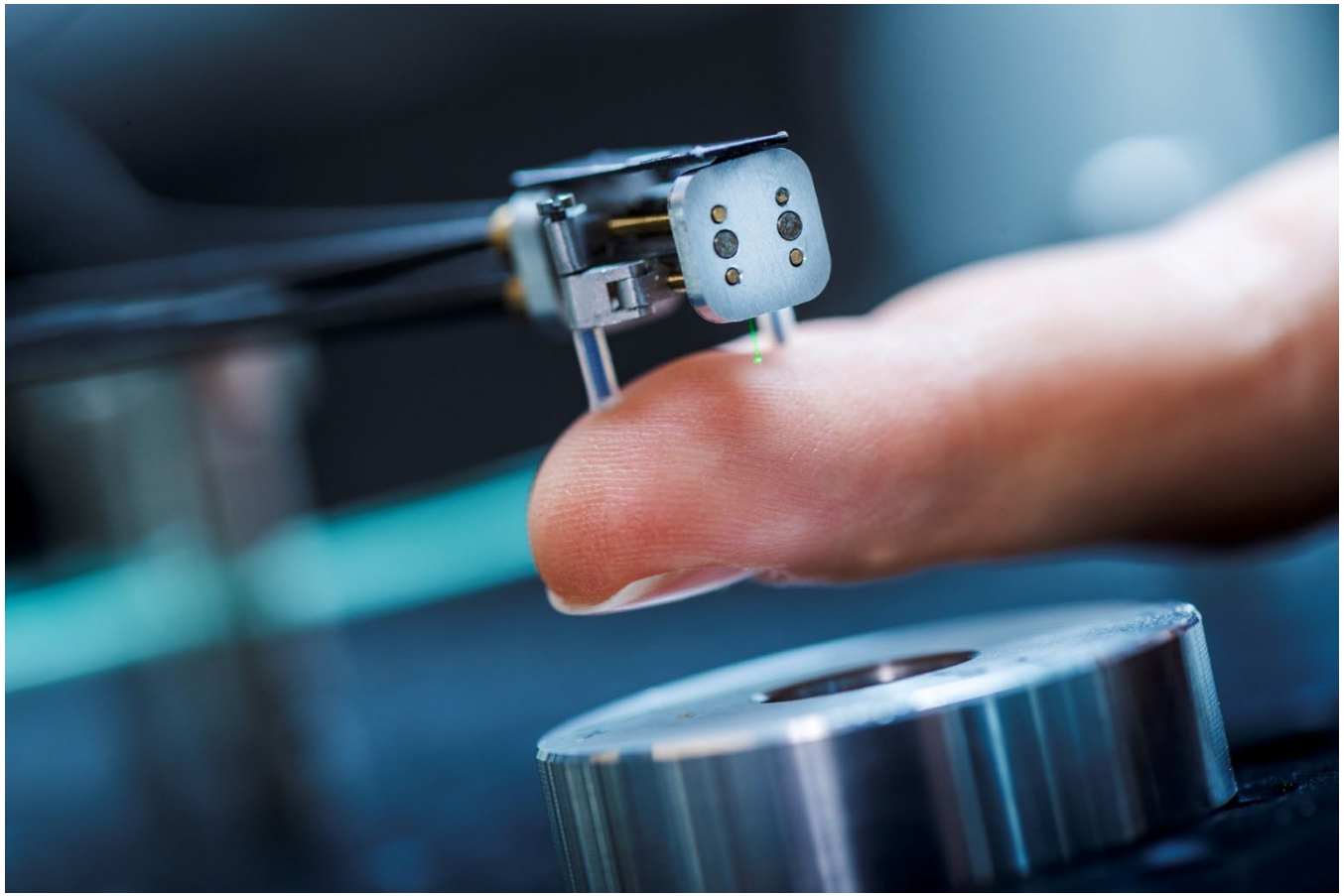


SOME HISTORY OF MEDICAL DEVICES

New stone age (10’000 B.C.) Middle age Today

SOME HISTORY OF DIAGNOSIS

2 INSTITUTIONS – 1 MASTER: Master of Science Biomedical Engineering

University of Basel
Department of Biomedical Engineering

Fachhochschule Nordwestschweiz

ADMISSION REQUIREMENTS

Medicine related Bachelors

- Biomedicine/Biomedical Sciences
- Dental Medicine
- Health Science and Technologies
- Human Medicine
- Pharmaceutical Sciences
- Sport, Exercise and Health Sciences

Natural Science Bachelors

- Biochemistry
- Biology
- Biotechnology
- Chemistry
- Computational Sciences
- Data Science
- Digital Life Sciences
- Computer Science
- Life Sciences and Technologies
- Materials Sciences
- Mathematics
- Medical Informatics
- Mikrotechnologies
- Micro - und Medical Technologies
- Mobile Robotics
- Nano Sciences
- Physics
- Photonics

Engineering Bachelors

- Civil Engineering
- Chemical Engineering
- Electrical engineering
- Mechanical Engineering
- Mobile Robotics
- System Engineering

CURRICULUM

4
Semesters

1st Sem. 30 ECTS

- Biomedical Basics 21 ECTS
- Med./Eng. Basics (Individual) 21 ECTS
- Engineering Basics 21 ECTS
- Biomedical Engineering Basics 9 ECTS

2nd Sem. 30 ECTS

- Biomedical Engineering Basics 12 ECTS
- Biomedical Engineering Electives 9 ECTS
- Tracks
  - I. Medical Systems Engineering 9 ECTS
  - II. Biomaterials Science and Engineering 9 ECTS

3rd Sem. 30 ECTS

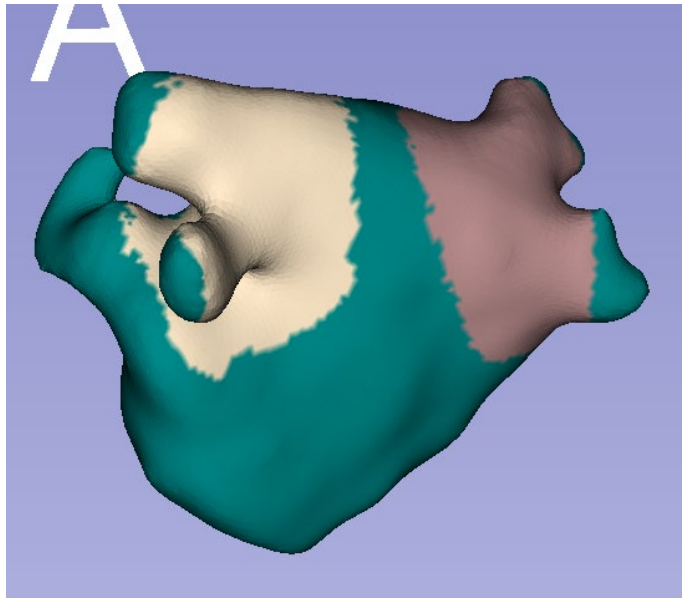
- Specializations
  - A. Computer- and Robot-Assisted Medicine 9 ECTS
  - B. Image Acquisition and Analysis 9 ECTS
  - C. Diagnostic and Therapeutic Technologies 9 ECTS
  - D. Implants and Regenerative Technologies 9 ECTS
- Specializations Electives 9 ECTS
- Practical Work and Practical Skills 12 ECTS

4th Sem. 30 ECTS

- Master's Thesis 25 ECTS + 5 ECTS

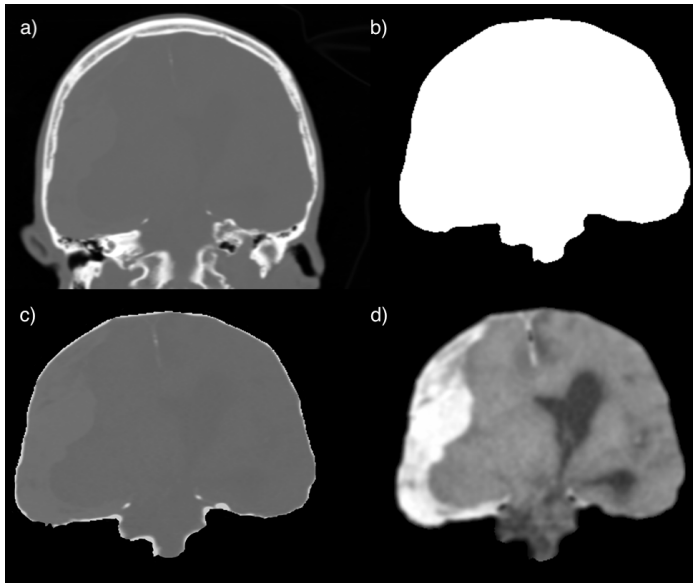
* Not all combinations of modules can be guaranteed

Master's Thesis Projects in 2023



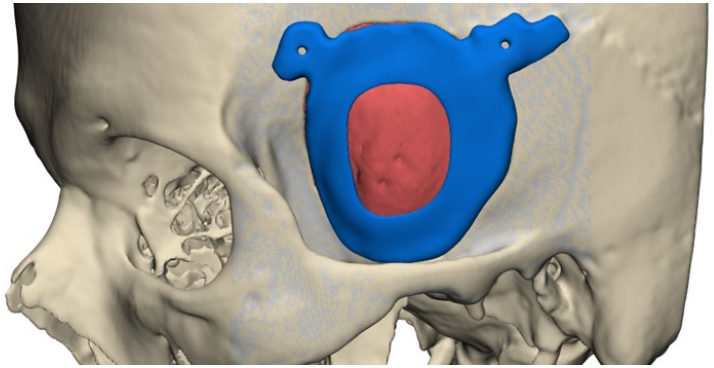
Automatic Curvature Analysis of the Left Atrium from Cardiac Magnetic Resonance Imaging

By Hélène Corbaz



Automated detection of cardiac and neurological causes of death in post mortem CT data

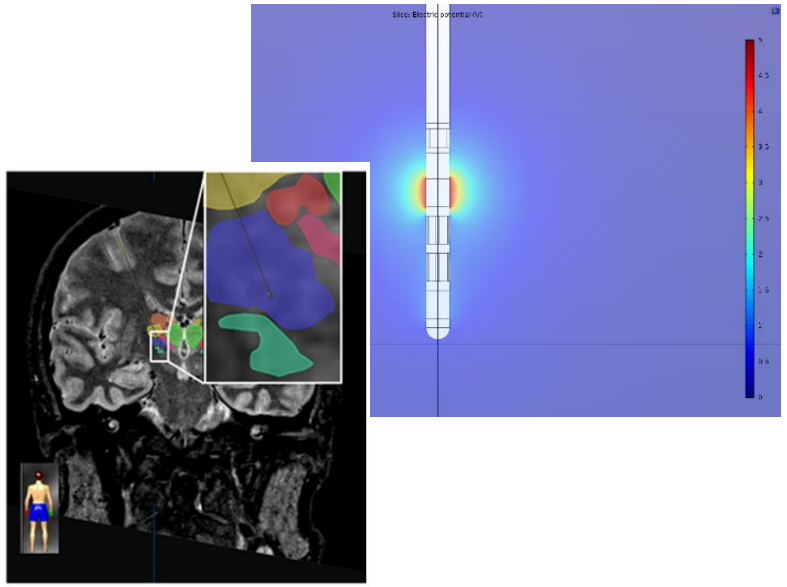
By Andrea Zirn



Effects of sterilization on the accuracy and the mechanical performance of 3D-printed surgical guides materials

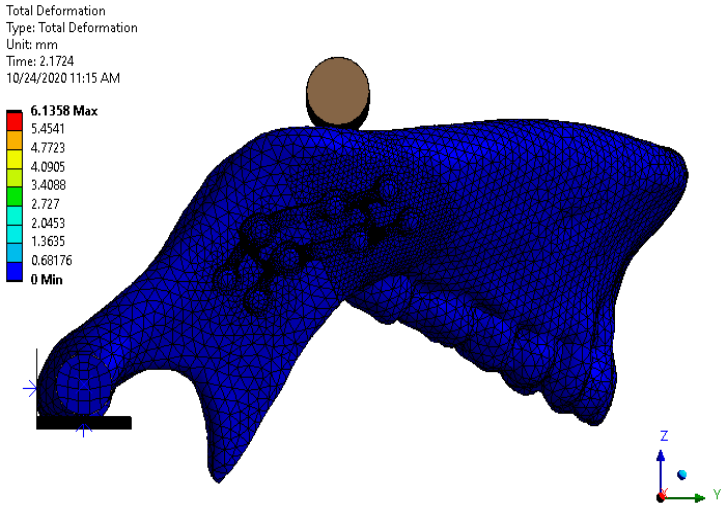
By Adriana Manea

Other Master's Thesis Projects



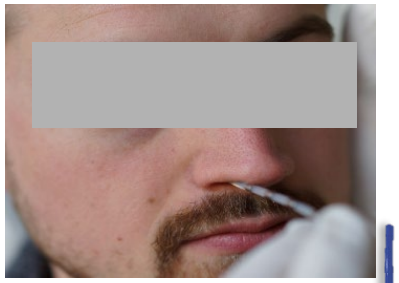
Deep Brain Stimulation (DBS) – Simulation and Experimental Work - Modelling of electrical field distribution within phantom.

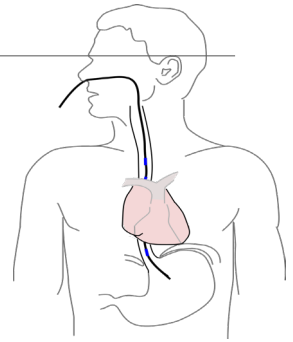
By A. Dietschy

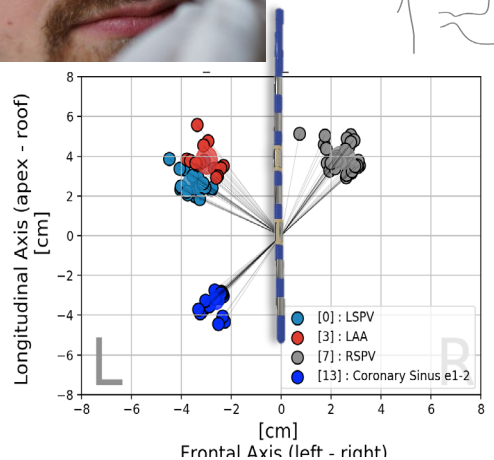


Finite Element Analysis and Validation of Mandible Fracture Treatment – Modelling and Biomechanical Testing.

By M. Maintz







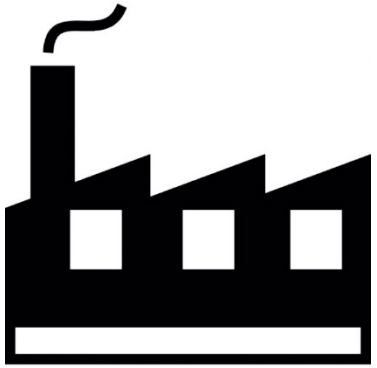
Cardiac Mapping System Based on Esophageal Electrocardiography – Source localization on invasively measured multi-channel electrocardiographic signals.

By multiple students

CAREER PROSPECTS

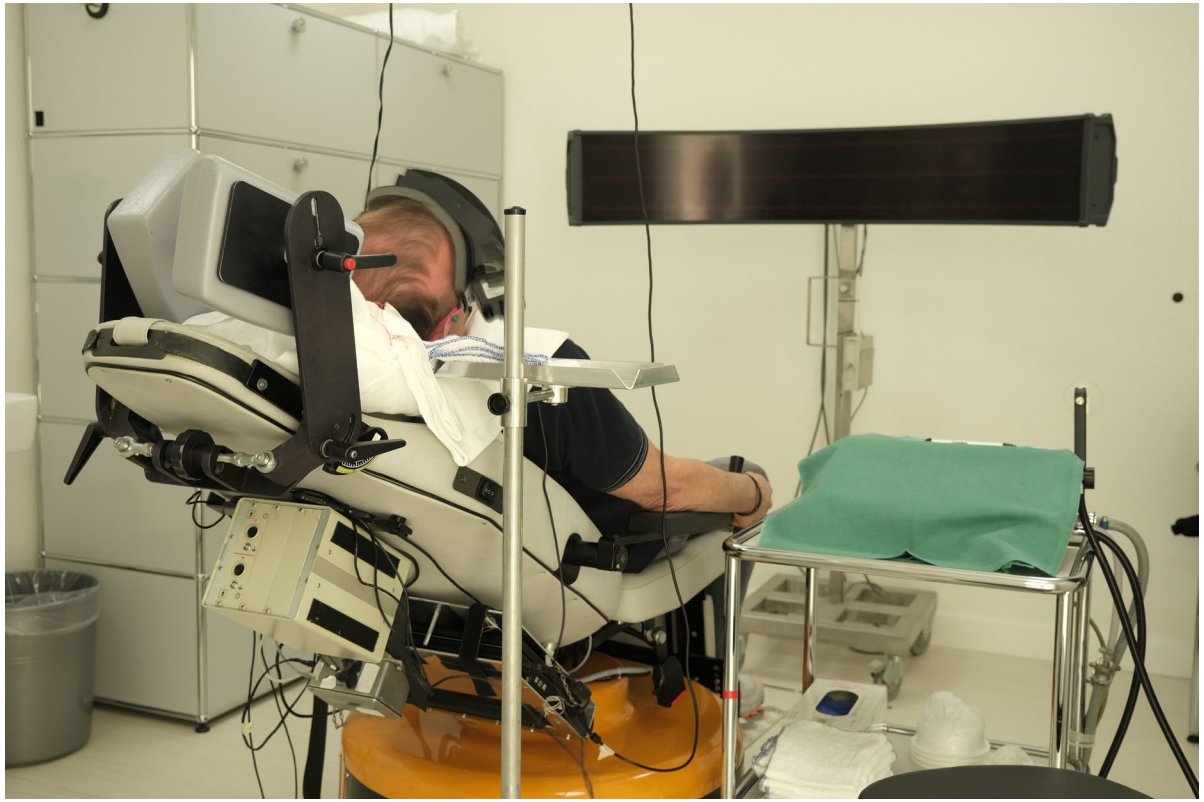
Academic Research

Healthcare



Industry

CAREER IN HEALTHCARE



Career in Industry

Johnson & Johnson MEDICAL

ZIMMER BIOMET
Your progress. Our promise.®

Roche Diagnostics

Adobe

BIOTRONIK
excellence for life

DePuy Synthes

straumann
simply doing more

HAAG-STREIT

Sanova
Advancing health

ziemer
OPHTHALMOLOGY

Google

THOMMEN Medical

YPSOMED
SELFCARE SOLUTIONS

Medtronic

Dentsply Sirona

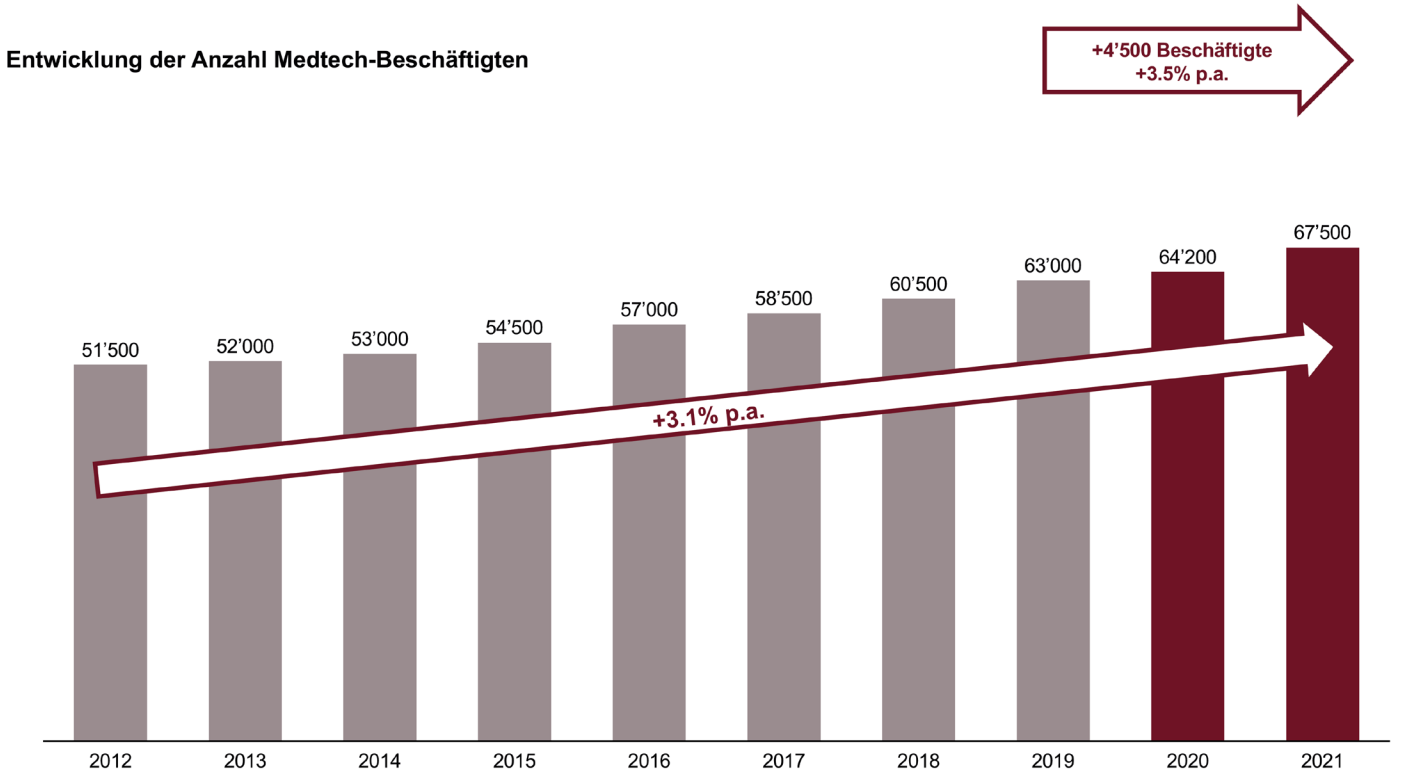
mindmaze

B|BRAUN
SHARING EXPERTISE

medartis®
PRECISION IN FIXATION

stryker®

GROWING MEDTECH INDUSTRY IN SWITZERLAND



Quelle: SMTI-Umfrageergebnis 2022; SMTI-Branchenberichte

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ACADEMIC RESEARCH CAREER

Thank You For Your Interest!

QUESTIONS? CONTACT US:

MEET US: