

+ Our center is an essential part of the Bern Medical Hub, situated on the Bern University Hospital campus in close vicinity to the University of Bern and is part of the Swiss Institute for Translational and Entrepreneurial Medicine sitem-insel.



siteminsel

INSELSPITAL  
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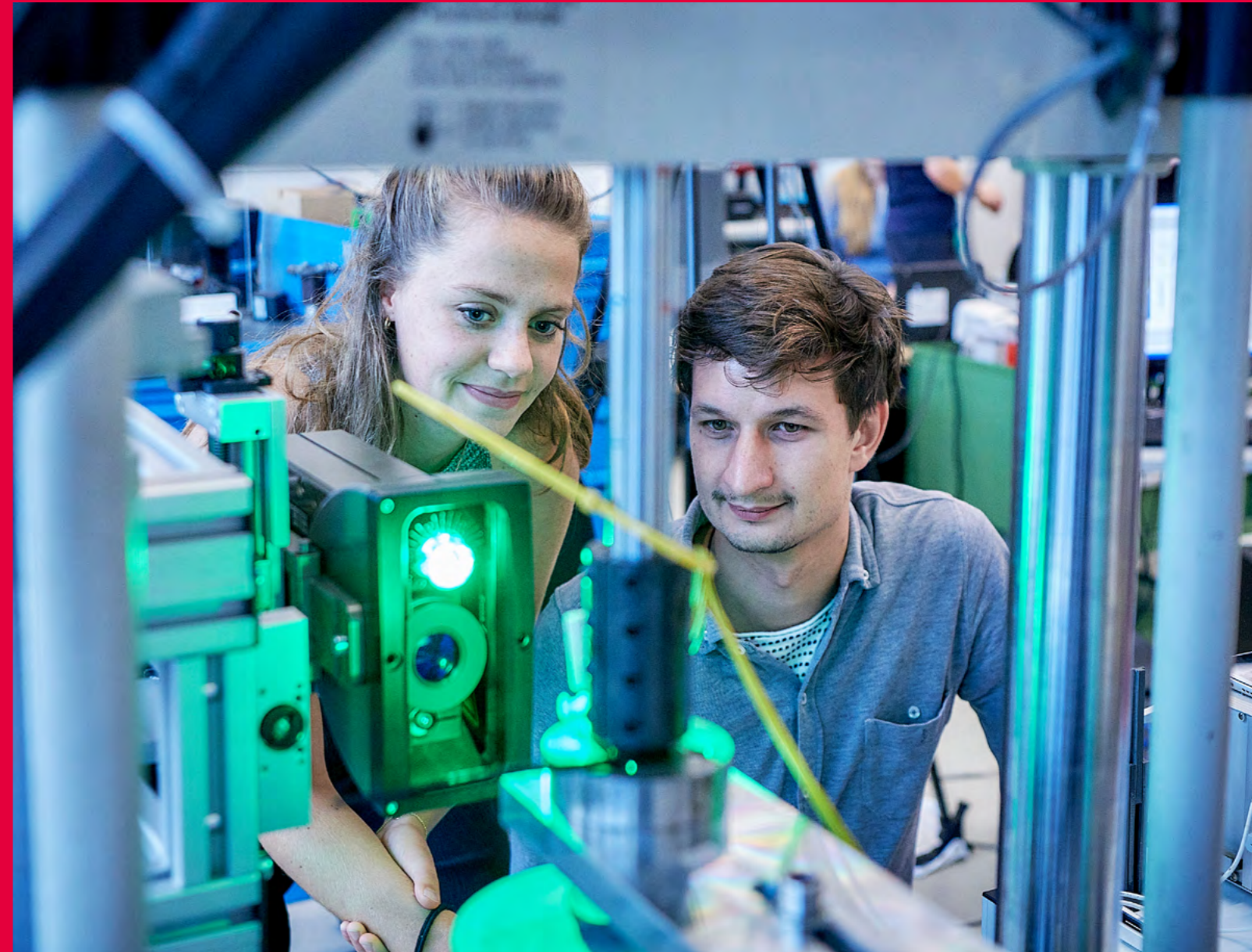
u<sup>b</sup>

UNIVERSITÄT  
BERN

ARTORG CENTER  
BIOMEDICAL ENGINEERING RESEARCH

# University of Bern ARTORG Center

Biomedical Engineering that Transforms Clinical Reality



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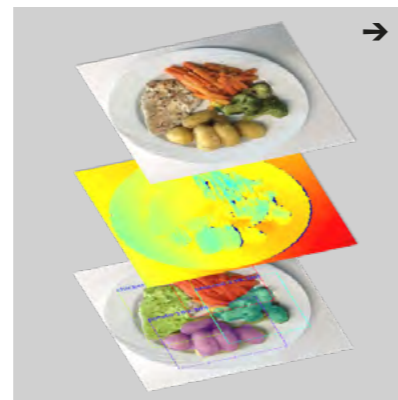
## ARTORG Center for Biomedical Engineering Research

ARTORG is the University of Bern's transdisciplinary Center of Excellence for medical technology research. Its mission is to tackle unmet clinical needs and anticipate future challenges in diagnosis, monitoring and treatment to create viable healthcare technology solutions with imagination, agility and purpose.

Covered topics range from discovery and basic research to clinical translation. In its unique constellation as an engineering department within a medical faculty, the ARTORG Center has been delivering 15 years of ambitious biomedical engineering research, teaching and development across a wide variety of clinical areas.

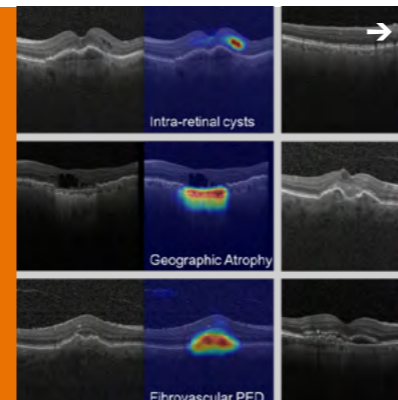
We are committed to excellence in academic education. The ARTORG offers globally leading master's and doctoral programs in biomedical engineering and AI, specialist courses for clinicians and networking events with industry partners. We offer master's and PhD students the possibility to translate skills and academic experiences into MedTech innovation at the forefront of healthcare.

Our key competencies include



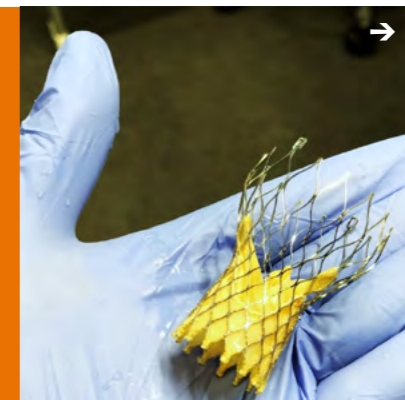
1.0

**Artificial Intelligence in Health & Nutrition**  
Machine learning approaches that translate "data into knowledge" to empower patients with diabetes and nutrition-conscious publics with user-friendly AI tools.



2.0

**Artificial Intelligence in Medical Imaging**  
Applies AI methods to develop clinical tools that use medical images for diagnostics, interventional radiology and surgical robotics.

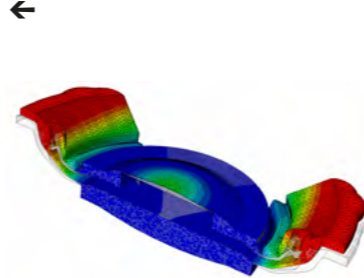


3.0

**Cardiovascular Engineering**  
Uses fluid mechanics to develop new diagnostic tools and improve the long-term durability and bio-compatibility of implants and therapeutic devices.

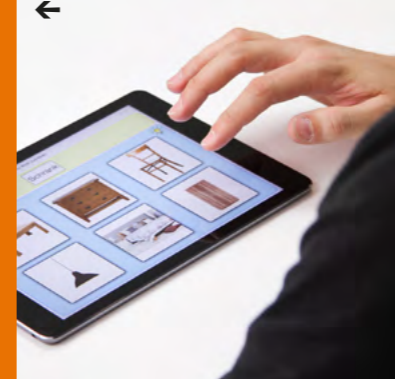
4.0

**Computational Bioengineering**  
Develops patient-specific computational models to inform decision making in vascular surgery, ophthalmology, and orthopedics.



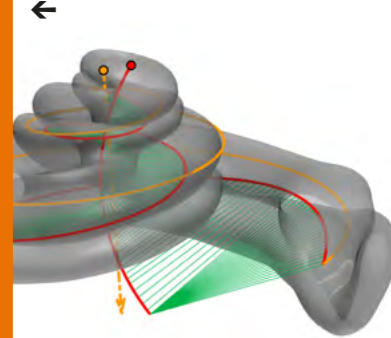
5.0

**Gerontechnology and Rehabilitation**  
Creates and evaluates neuro-rehabilitation technology for brain injury and neurodegenerative diseases to enhance autonomy and independent living.



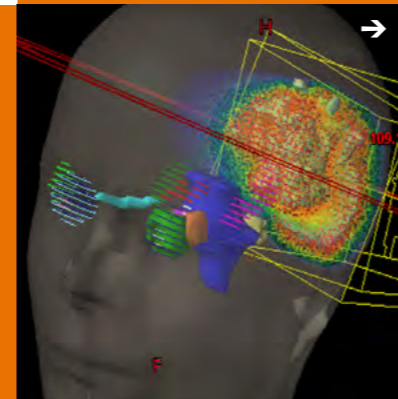
6.0

**Hearing Research Laboratory**  
Technology for the diagnosis and treatment of inner ear diseases including hearing loss, tinnitus and vertigo through simulation, experiments and clinical studies.



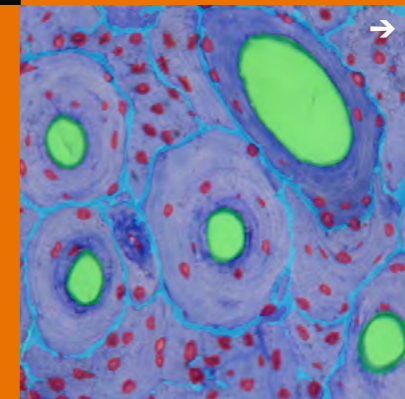
7.0

**Image-guided Therapy**  
Advances minimally invasive surgical and interventional procedures using medical robotic and stereotactic guidance technologies.



8.0

**Medical Image Analysis**  
Develops advanced medical image analysis and translational biomedical engineering technologies to quantify, diagnose, and follow-up disorders and diseases.

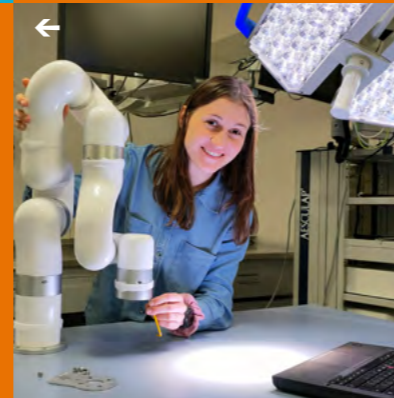


9.0

**Musculoskeletal Biomechanics**  
Explores multiscale structure-function relationships of bone and bone-implant systems to improve prevention, diagnosis and treatment of skeletal diseases.

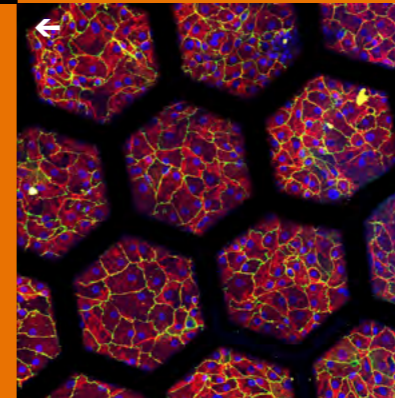
10.0

**Neuro Robotics Group**  
Focuses on the development of surgical instruments for neurosurgery based on robotics and micromechatronics. Manages the ARTORG's 3D printing and electronics core facilities.



11.0

**Organs-on-Chip Technologies**  
Builds advanced in-vitro models of the lung that recreate the cellular microenvironment of the respiratory tract for drug development and precision medicine.



12.0

**Urogenital Engineering**  
Innovates technologies to improve insight and treatment of urinary tract diseases (urinary retention, incontinence, kidney stones) which have a significant impact on health and quality of life.



**Mechanical Design & Production**

Our workshop co-develops and manufactures mechanical and electro-mechanical components from concept to production to enable state-of-the-art experimental set-ups in a wide variety of biomedical engineering research areas.



Education

- Master of Science in Artificial Intelligence in Medicine**
  - Principles of AI, Machine and Reinforcement Learning
  - Introduction to Clinics and Clinical Application Modules
- Master of Science in Biomedical Engineering**
  - Specialization in Biomechanical Systems, Electronic Implants & Image-guided Therapy

- x Two-year full-time programs in English (120 ECTS)
- x Affiliated to Bern University Hospital with strong clinical focus

**u<sup>b</sup>**