



**Bern University of Applied Sciences**  
Engineering and Information Technology  
Institute of Human Centered Engineering

# Energy Harvesting

## Institute of Human Centered Engineering

Prof. Dr. Marcel Jacomet  
BFH-TI

27. October 2010

# Welcome to BFH-TI

- ▶ Organizers
  - ▶ sensors.ch
  - ▶ BFH-TI, Institute of Human Centered Engineering - BMElab
- ▶ Session Chairs
  - ▶ Morning Session:  
Prof. Dr. Volker Koch, BFH-TI, HuCE - BMElab
  - ▶ Afternoon Session:  
Philippe Fischer, sensors.ch
- ▶ Sponsors
  - ▶ W<sup>6</sup>
- ▶ Unterstützung
  - ▶ Swiss IEEE Biomedical Chapter
  - ▶ FSRM
  - ▶ BFH-TI

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# Institute of Human Centered Engineering

## Our Goals

- ▶ At the *Institute of Human Centered Engineering* (HuCE) we combine the knowledge and technology know-how we experienced in an interdisciplinary way to improve the quality of life for humans.
- ▶ Our goal at HuCE is to work together with specialists from industry, hospitals and universities as a team.

# Institute of Human Centered Engineering

## Our Labs

Energy Harvesting

Jacomet

Welcome

HuCE

Energy Harvesting

*Faculties:*

*Research Laboratories*

Electrical and  
Computer Engineering

Micro- and  
Medicaltechnology

Computer Science

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Energy Harvesting

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Electrical and  
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microLab

microelectronics  
signal processing  
hardware algorithms  
sensor nodes

Micro- and  
Medicaltechnology

Computer Science

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hardware algorithms  
sensor nodes

Micro- and  
Medicaltechnology

Computer Science

CPVRIlab

computer perception  
medical image processing  
virtual reality  
haptics

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Electrical and  
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microLab

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Micro- and  
Medicaltechnology

microRoboticLab

biomechanics  
robotics & micro robotics

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OptoLab

optical coherence tomography OCT  
optical measurement techniques  
spectroscopy

microRoboticLab

biomechanics  
robotics & micro robotics

Micro- and  
Medicaltechnology

CPVRIlab

computer perception  
medical image processing  
virtual reality  
haptics

Computer Science

PsyDesignLab

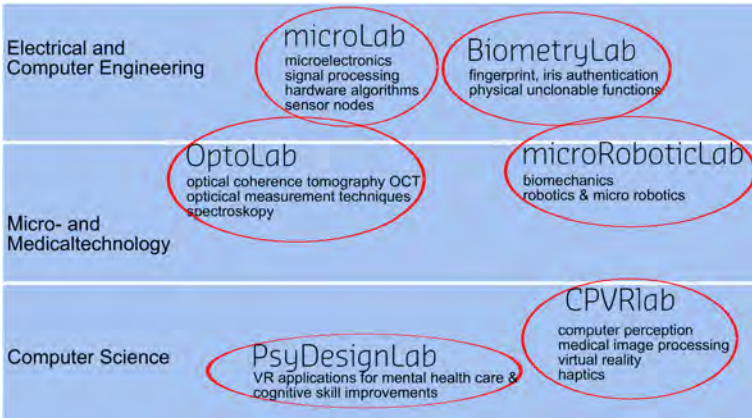
VR applications for mental health care &  
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*Faculties:*

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Electrical and  
Computer Engineering

microLab

microelectronics  
signal processing  
hardware algorithms  
sensor nodes

BiometryLab

fingerprint, iris authentication  
physical unclonable functions

OptoLab

optical coherence tomography OCT  
optical measurement techniques  
spectroscopy

microRoboticLab

biomechanics  
robotics & micro robotics

Micro- and  
Medicaltechnology

BMElab

biomedical sensors/actuators  
electronic health care  
electronic implants  
bioreactors

Computer Science

PsyDesignLab

VR applications for mental health care &  
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CPVRIlab

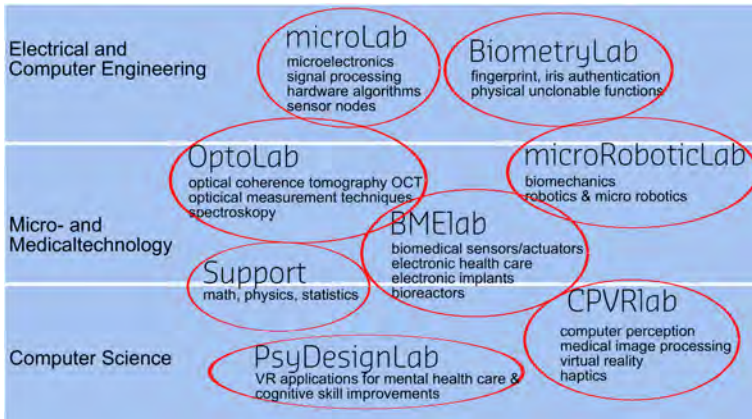
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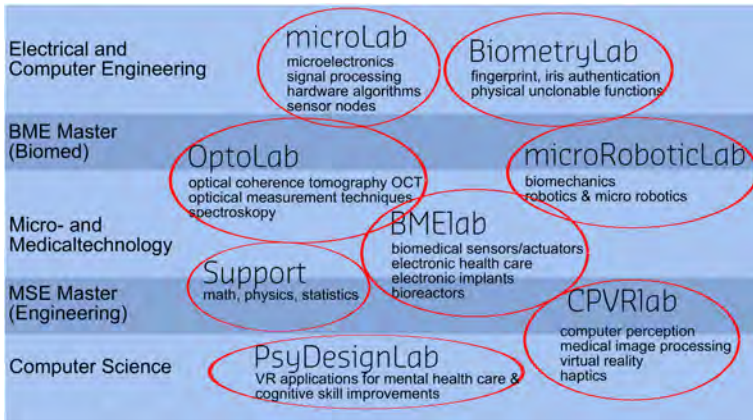


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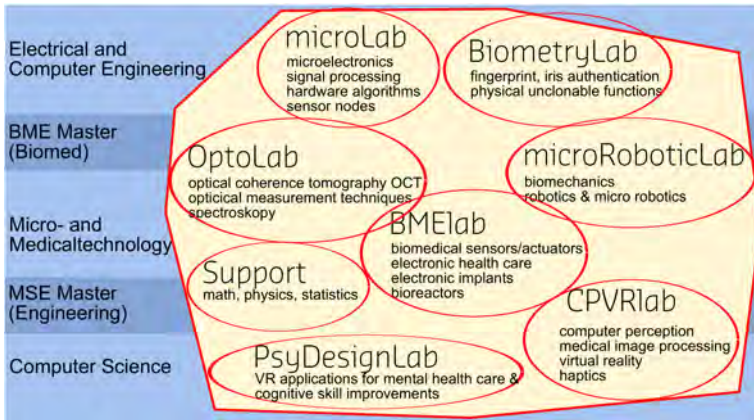


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# Institute of Human Centered Engineering

## Our Staff

- ▶ 17 full time professors
- ▶ > 30 research assistants
- ▶ BME and MSE master students



and others ...

# Institute of Human Centered Engineering

## Our Experience

- ▶ experience from:
  - ▶ dozens of CTI projects
  - ▶ numerous industry projects/mandates
  - ▶ applied research projects
- ▶ flexible collaboration models for SME
- ▶ immediate start/stop

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## Some Projects

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- ▶ motion analyses at racing bikes: industry project



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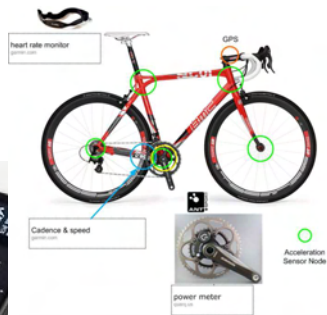
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- ▶ fast heart cell data acquisition: research project
- ▶ implantable temperature measure capsule for ruminant animals



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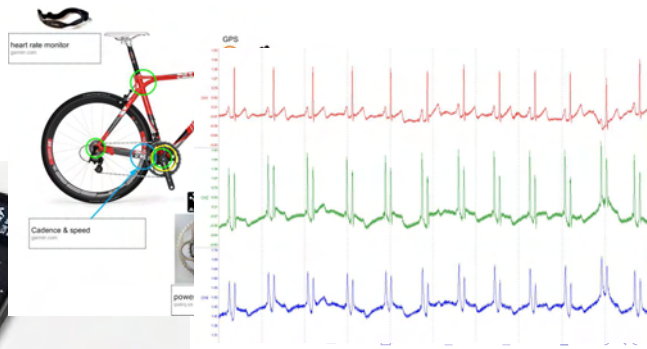
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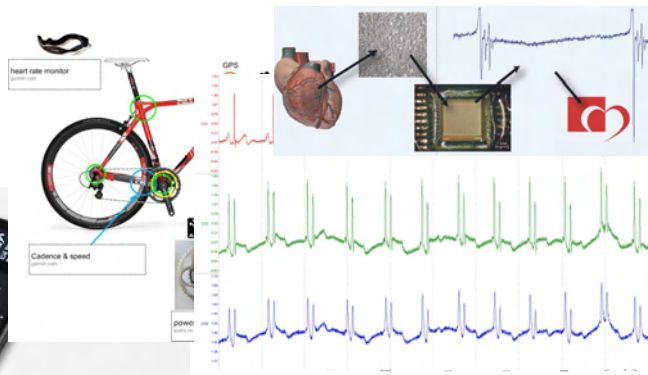
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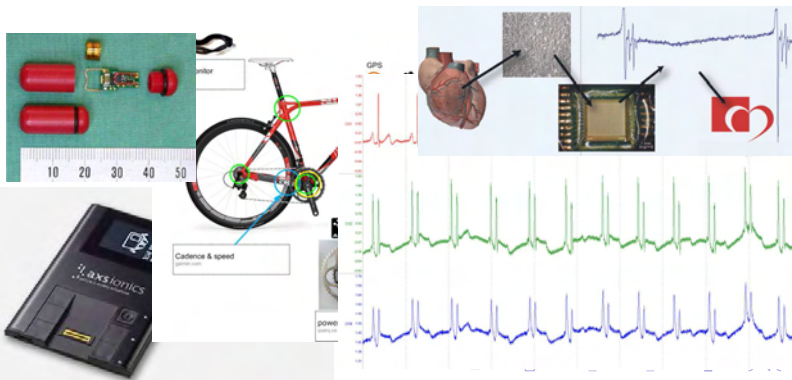
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# Energy Harvesting

- ▶ we have a dream ...
- ▶ ... *Spirit of Biel* won the solar race in Australia
- ▶ welcome to and enjoy the *Energy Harvesting* Conference



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