List of possible Masterthesis subjects at the Institute of Medical and Analytical Technologies, University of Applied Sciences Northwestern Switzerland, Muttenz, near Basel

<table>
<thead>
<tr>
<th>Title</th>
<th>Major Area</th>
<th>Contact</th>
<th>Place</th>
<th>Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One- and two-way training of smart shape memory implants</strong></td>
<td>Therapeutic Technologies</td>
<td>Michael de Wild / Institute for Medical and Analytical Technologies</td>
<td>☒ institute HLS ☐ research institute/university ☐ company</td>
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<tr>
<td><strong>Investigations of antibacterial implant coatings</strong></td>
<td>Therapeutic Technologies</td>
<td>Michael de Wild / Institute for Medical and Analytical Technologies</td>
<td>☒ institute HLS ☒ research institute/university ☒ company</td>
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<tr>
<td><strong>Development of ceramic/metal composite biomaterials</strong></td>
<td>Therapeutic Technologies</td>
<td>Michael de Wild / Institute for Medical and Analytical Technologies</td>
<td>☒ institute HLS ☐ research institute/university ☐ company</td>
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<tr>
<td><strong>Development of a digital image correlation method based on SEM images of thermo-mechanically activated SMA-material</strong></td>
<td>Therapeutic Technologies</td>
<td>Michael de Wild / Institute for Medical and Analytical Technologies</td>
<td>☒ institute HLS ☐ research institute/university ☐ company</td>
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<tr>
<td><strong>Multimodal marker for surgical navigation systems</strong></td>
<td>Therapeutic Technologies</td>
<td>Erik Schkommodau / Institute for Medical and Analytical Technologies</td>
<td>☒ institute HLS ☐ research institute/university ☒ company</td>
<td>construction, surface coating, experimental, in cooperation with swiss company</td>
</tr>
<tr>
<td><strong>Development of an intraoperative optical measurement tool</strong></td>
<td>Therapeutic Technologies</td>
<td>Erik Schkommodau / Institute for Medical and Analytical Technologies</td>
<td>☒ institute HLS ☐ research institute/university ☒ company</td>
<td>software development, experimental, in cooperation with french company</td>
</tr>
<tr>
<td><strong>Miniaturizing 3d scanner for endoscopic surgery</strong></td>
<td>Therapeutic Technologies</td>
<td>Erik Schkommodau / Institute for Medical and Analytical Technologies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Design of passive magnetic bearing for a left ventricular assist device

**Major:** Therapeutic Technologies  
**Contact:** Erik Schkommodau / Institute for Medical and Analytical Technologies  
**Place:** Institute HLS  
**Keywords:** simulation of magnetic fields, FEM, experimental, construction

### Surgical planning module for fracture treatment using intraoperative 3d-c-arm / Stitching methods for intraoperative x-ray images

**Major:** Therapeutic Technologies  
**Contact:** Erik Schkommodau / Institute for Medical and Analytical Technologies  
**Place:** Institute HLS  
**Keywords:** software development, experimental

### Augmented reality visualisation method for endoscopic surgery

**Major:** Therapeutic Technologies  
**Contact:** Erik Schkommodau / Institute for Medical and Analytical Technologies  
**Place:** Institute HLS  
**Keywords:** image processing, software development, hardware interfaces

### Mobile intraoperative laser spectroscopy for automatic tissue recognition

**Major:** Therapeutic Technologies  
**Contact:** Erik Schkommodau / Institute for Medical and Analytical Technologies  
**Place:** Institute HLS  
**Keywords:** optics, experimental

### Intra corporal endoscopic marker for surgical navigation

**Major:** Therapeutic Technologies  
**Contact:** Erik Schkommodau / Institute for Medical and Analytical Technologies  
**Place:** Institute HLS  
**Keywords:** algorithms, software development, experimental

### Energy harvesting in the OR

**Major:** Therapeutic Technologies  
**Contact:** Erik Schkommodau / Institute for Medical and Analytical Technologies  
**Place:** Institute HLS  
**Keywords:** experimental, electronics, construction, in cooperation with Swiss company