



At LFB, we believe the most transformative breakthroughs happen where diverse perspectives converge. Our mission is to bridge the gap between complex raw data and real-world clinical care, turning abstract numbers into life-changing insights.

We foster a collaborative and inclusive research culture - a vibrant community where pioneering work in imaging instrumentation and computational science comes to life. By synthesizing human-centric learning with high-fidelity physical modeling, we engineer specialized frameworks for robust, evidence-based inferencing. We navigate clinical complexity with precision, ensuring our technological excellence remains anchored in compassionate patient advocacy and human-centered design.

PhD Position: AI for Automated Surgical Planning

Join a visionary research consortium at the Chair of Imaging and Computer Vision (LFB). Within the OASIS – Osteotomy AI-driven Surgical Intelligence System project, we are developing AI-driven tools for automated, patient-specific surgical planning. The goal is a seamless digital workflow from medical imaging to virtual surgical planning and patient-specific surgical guides that support surgeons and improve patient outcomes. The platform focuses on orthognathic surgery and the correction of limb deformities in orthopedics and trauma surgery. By combining computer vision, self-supervised learning, 3D modeling, and additive manufacturing, we aim to transform complex medical image data into precise surgical plans.

You will work in a collaborative and inclusive research environment with clinicians, AI researchers, and engineers. We particularly encourage applications from women and underrepresented groups in AI and engineering.

Your Research Impact

As a PhD researcher, you will develop AI methods that automate surgical planning.

- **3D Anatomical Intelligence**
Develop representation learning approaches based on DINOv2 for high-resolution CT and CBCT/DVT data to capture complex anatomical structures.
- **Self-Supervised Learning**
Design learning strategies that leverage large volumes of unlabeled medical imaging data.
- **Multimodal Surgical Reasoning**
Combine visual models with multimodal language models to translate clinical descriptions into surgical planning instructions.
- **Automated Planning**
Integrate AI representations with geometric algorithms to propose osteotomy planes and surgical plans.

Your Profile

- Very good Master's degree in Computer Science, Physics, Biomedical Engineering, or a related field
- Strong background in AI/ML and experience with Python/PyTorch
- Interest in self-supervised learning or vision transformer models
- Motivation to work on interdisciplinary medical AI challenges

What We Offer

- Research with real clinical impact
- A supportive and diverse research environment
- Access to unique clinical datasets and collaborations
- Opportunities for high-impact publications and conferences
- Flexible and family-friendly working conditions