



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 and robotic applications, turning abstract sensor signals into life-changing insights. We foster a collaborative and inclusive research culture — a vibrant community where pioneering work in imaging instrumentation, computational science, and embodied intelligence comes to life.

## PostDoc Position - Physical AI Research

Join a visionary research team at the Chair of Imaging and Computer Vision (LFB), RWTH Aachen University. We are developing Physical AI systems - robots and embodied agents that perceive, reason, and act in the physical world. Inspired by state-of-the-art vision-language-action (VLA) models, we are pushing the boundaries of robot learning, reinforcement learning from experience, and real-world deployment of foundation models on robotic platforms. This PostDoc role is central to a founding moment: launching a new Physical AI research group within one of Europe's top technical universities, embedded in a network of leading industry and clinical partners.

As a PostDoc researcher and co-founder of the Physical AI group, you will develop methods that enable robots to learn from demonstrations, corrections, and autonomous experience, and deploy them in real-world settings.

- **Vision-Language-Action (VLA) Models:** Design and implement VLA architectures integrating vision, language, and action for dexterous manipulation, building on large pre-trained vision-language backbones (e.g., 5B-parameter VLMs).
- **Reinforcement Learning from Experience:** Develop RL pipelines - offline RL, advantage-conditioned policies - enabling robots to grow beyond pure imitation, achieving human-level and superhuman robustness through autonomous experience.
- **Long-Horizon Task Mastery:** Investigate credit assignment across extended tasks via learned value functions, enabling robots to detect and correct compounding errors in complex real-world scenarios.
- **Sim-to-Real Transfer & World Models:** Bridge simulation and deployment using world models, self-supervised representations (JEPA, DINOv3), and transfer techniques for robust generalization.
- **Medical & Clinical Robotics:** Partner with imaging and clinical groups to apply Physical AI in healthcare robotics, combining LFB's sensor expertise with embodied intelligence.

### Candidate Profile:

- PhD in Computer Science, Electrical Engineering, Robotics, Physics, or a related field
- Strong background in deep learning, with experience in reinforcement learning, imitation learning
- Hands-on experience with PyTorch and large-scale model training; familiarity with VLA or foundation model architectures is a strong advantage
- Publication record in top-tier venues (NeurIPS, ICML, ICLR, CoRL, ICRA, or equivalent)
- Drive to work at the intersection of Physical AI, embodied intelligence, and real-world deployment
- Excellent communication skills in English; German is advantageous but not required

### What We Offer:

- A founding role in a new Physical AI group, with direct influence on its research agenda and culture - supported by an established industry partner in humanoid robotics
- A leading research environment at one of Europe's top technical universities, with access to robotic platforms and unique clinical and industrial datasets
- Mentorship toward independent research leadership, including support for grant applications (DFG, BMBF, EU Horizon) and future professorship positioning
- Active collaborations with industry and medical technology partners, with pathways to genuine real-world impact
- Opportunities for high-impact publications, invited talks, and international conference participation
- Flexible, family-friendly working conditions in line with RWTH Aachen University policies