PhD Student or Postdoctoral Researcher in Optoacoustic Tomography (f/m/d)

Join us in shaping the future of biomedical imaging

The **Chair of Biological Imaging (CBI)** at the Technical University of Munich (TUM) and the Institute of Biological and Medical Imaging (IBMI) at Helmholtz Munich form one of Europe's leading centers for biomedical imaging and sensing innovation. Our mission is to create transformative technologies that reveal previously inaccessible biological information and accelerate breakthroughs in medicine, biology, and environmental health.

Our interdisciplinary team of scientists and engineers from more than 25 countries develops technologies that bridge fundamental research, clinical translation, and real-world healthcare impact. With state-of-the-art infrastructure, strong industrial partnerships, and a proven track record of innovation, IBMI offers an exceptional environment for ambitious researchers seeking to work at the forefront of bioengineering.

The Opportunity:

We are seeking a highly motivated PhD Student or Postdoctoral Researcher (f/m/d) to develop the next generation of hand-held multispectral optoacoustic tomography (MSOT) systems for clinical imaging. This project aims to establish advanced hybrid optoacoustic and ultrasound imaging technologies with unprecedented image quality and quantitative performance.

As part of a multidisciplinary team spanning optics, acoustics, electronics, computation, engineering, physics, medicine, and clinical translation, you will contribute to technologies that expand the capabilities of clinical optoacoustic imaging and accelerate their translation toward real-world healthcare applications.

You will have the opportunity to:

- Develop next-generation hand-held hybrid optoacoustic and ultrasound imaging systems with unprecedented image quality and quantitative performance.
- Advance clinical imaging solutions for cancer diagnosis and therapy monitoring, treatment-related toxicity assessment, and cardiometabolic disease evaluation.
- Develop innovative optical, acoustic, electronic, and computational technologies and components for clinical optoacoustic imaging.
- Contribute to internationally visible research programs funded by the European Union and the German Government.
- Collaborate closely with clinical partners and an innovative MedTech start-up to accelerate technology translation toward healthcare applications.
- Publish in leading journals, present at international conferences, and contribute to intellectual property generation.
- Help redefine how advanced imaging technologies support diagnosis, therapy monitoring, and precision medicine.

This position is embedded within major research and innovation programs funded by the European Union and the German Government and offers exceptional opportunities for scientific visibility, professional growth, and future leadership.

Your profile:

We are looking for talented candidates who combine scientific excellence with a passion for translating innovation into real-world impact.

Required qualifications

- Master's degree in physics, electrical engineering, mechanical engineering, biomedical engineering, medical technology, optics, mechatronics, computer engineering, or a related discipline.
- Strong motivation, scientific curiosity, and commitment to scientific excellence.
- Experience in one or more of the following areas:
    - electronics and microelectronics
    - optical systems and lasers,
    - ultrasound or sensor technologies,
    - precision instrumentation,
    - mechanical design and Computer-Aided Design (CAD),
    - biomedical imaging systems.
- Programming experience in MATLAB and/or Python.
- Excellent problem-solving skills and enthusiasm for interdisciplinary research.
- Excellent written and spoken English.

Experience with optoacoustics, ultrasound imaging, embedded systems, electronics, image reconstruction, or scientific software development is considered an advantage but is not required.

Our offer

This position is your opportunity to help create a new generation of medical technology and medical impact with high dissemination and commercialization potential. You will work in one of the world's leading centers for optoacoustic imaging and gain direct exposure to the entire innovation pipeline, from technology invention and system engineering to clinical validation and regulatory translation. We offer:

- Participation in a highly ambitious, internationally visible research program.
- Access to state-of-the-art imaging, photonics, electronics, and biomedical research infrastructure.
- Close interaction with world-leading experts in imaging, bioengineering, and clinical medicine.
- Opportunities to contribute to patents, technology transfer, and future commercialization activities.
- Extensive international networking and collaboration opportunities.
- Outstanding career-development and training programs through Helmholtz Munich and TUM.
- TUM offers a wide variety of inspiring and challenging PhD programs, which will supplement your research training with outstanding opportunities for career development, continued education and life-long learning.
- A dynamic, supportive, and highly collaborative working environment.

Life in Munich

Located at the foothills of the Alps, Munich consistently ranks among the world's most livable cities. Home to leading universities, research institutes, technology companies, and biomedical startups, Munich offers a unique ecosystem for scientific excellence, innovation, and entrepreneurship.

Contract and Conditions

The successful applicant will initially receive a three-year contract (PhD) or a two-year contract commensurate with experience (Postdoctoral researcher), with the possibility of extension. A long-term perspective is available for outstanding candidates. Salary will follow the German Federal public service salary scale (TV EntgO Bund EG13; EG13-75% for PhD students).

Helmholtz Munich and TUM are committed to diversity, equal opportunity, and inclusion. Applications from qualified candidates of all backgrounds are warmly encouraged. The position is suitable for filling with severely disabled persons. Severely disabled applicants will be given preference granted otherwise essentially equal suitability, ability and professional performance.

Your application

We are looking forward to receiving your comprehensive online application, including your letter of motivation, CV, and academic transcripts of records, preferably in English. Please state the name of the position in your letter of motivation.

For any questions, please contact:

Dr. Ivy Curren and
Dr. Maximilian Bader

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Links:
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