

## PhD student in computational medical imaging (f/m/d)

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** are an integrated, multi-disciplinary research structure and form the cornerstone of a rapidly expanding bioengineering ecosystem in Munich, Germany; including the Research Center TranslaTUM and the Helmholtz Pioneer Campus, which integrate bioengineering with oncology and metabolic disorders, respectively. CBI scientists develop next-generation imaging and sensing methods to measure previously inaccessible properties of living systems, hence, catalyzing breakthroughs in biology, medicine and the environment. Comprising 11 inter-disciplinary laboratories and scientists from more than 25 countries, CBI offers state-of-the-art infrastructure for innovative research and a perfect environment to accelerate your career.

Join our team and be part of our rich and dynamic research culture of enquiry and innovation. CBI researchers come from the top ranks of physics, chemistry, engineering, and biomedicine and attract significant investment from national and international sources. Our scientists serve in international societies and conferences and are recipients of a multitude of top international and German awards, including the prestigious Gottfried Wilhelm Leibniz prize and 11 ERC awards. In addition to scientific excellence, CBI promotes entrepreneurship, company spin-off activities, and collaborations with other top academic institutions and leading corporations in the photonics, pharmaceuticals and healthcare sectors.

The group for AI in optoacoustics is looking for a highly qualified and motivated **Phd student (f/m/d)** to drive the development of computational methods for medical optoacoustic imaging in the context of an ERC-funded project.

### **The Mission:**

Radiomics – the extraction of clinically relevant information from complex medical imaging data via mathematics and data science – is on the verge of becoming a main player in clinical research and medicine. However, the current radiomics workflow mostly relies on feature engineering and black box machine learning, lagging behind the state-of-the-art in explainable artificial intelligence. Contribute to the implementation of intelligent radiomics by integrating the whole imaging value chain – ranging from imaging hardware, over image formation, to medical interpretation of the data – into an intelligent software environment.

The clinical use case of the project is optoacoustic imaging of peripheral neuropathy. The internal structure and vascular supply of peripheral nerves can be visualized in unprecedented detail by exploiting the spectral contrast of optoacoustic imaging. The project, thus, has the potential to enable early detection of pathological changes in peripheral nerves, e.g., in conjunction with diabetes.

Therefore, if you have expertise in computational methods in medical imaging, join our team and help us gain as many medically relevant insights as possible from our imaging data. This is your opportunity to contribute to a medical imaging revolution!

## Your profile:

The successful applicant must have the following:

- A master degree in Mathematics, Computer Science, Data Science, Physics, Engineering or a related discipline.
- Strong motivation, scientific curiosity and commitment to scientific excellence.
- Expertise in machine learning, medical imaging, probabilistic modelling, simulation, data analysis.
- Strong programming skills.
- Team player skills and enthusiasm to work in a multi-disciplinary, collaborative environment.
- Excellent command of the English language.

## Our offer

We offer you the unique chance to make a difference in future healthcare. At CBI, we strongly believe in scientific excellence and innovation. This is your opportunity to be part of and to advance your career in a world-leading research institute, where bioengineering principles meet today's challenges in biology, medicine and environmental health to develop the solutions of tomorrow. CBI provides a highly international, multi-disciplinary environment with excellent opportunities for professional growth. You will be part of a dynamic, professional and highly motivated team within a stimulating environment and gain international exposure through our partners and collaborators across Europe and the world. 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.

The group for AI in optoacoustics is well-integrated in the Munich medical imaging ecosystem, working closely with the Institutes on Computational Biology (ICB) and AI for Health (AIH) at Helmholtz Munich and with strong ties to the Klinikum rechts der Isar and the interdisciplinary research center TranslaTUM.

Situated on the foothills of the Alps, Munich is consistently ranked as one of the most vibrant and enjoyable cities in the world, with an exceptionally quality of life. Greater Munich is also home to several world-class universities and research institutes, creating a truly inspiring intellectual atmosphere.

The successful applicant will initially have a 3-year contract, with the possibility of extension. Salary will commensurate with work experience and seniority (Free State of Bavaria, TV-L E13-75%). As an equal opportunity and affirmative action employer, TUM explicitly encourages applications from women as well as from all others who would bring additional diversity dimensions to the university's research and teaching strategies. Qualified applicants with physical disabilities will be given preference.

## Your application:

We are looking forward to receiving your comprehensive application including your letter of motivation, CV and academic transcripts of records preferably in English and in a single PDF file, via email to [cbi.recruitment@tum.de](mailto:cbi.recruitment@tum.de). Please indicate "PhD in computational medical imaging" in the subject line.

For any question, please contact:

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