Chair of Biological Imaging
Technical University of Munich

Opportunities for Talents

Postdoctoral fellow (f/m/d) in optoacoustic sensor development

Are you passionate about science, full of ideas and innovative potential that drive change and enjoy working in an international, fast-paced environment? Are you motivated by the societal impact of research and seek an opportunity to play an instrumental part in the development of emerging technologies for biology, healthcare and environmental applications? Then the Chair of Biological Imaging (CBI) at the Technical University of Munich (TUM) and its integrated Institute of Biological and Medical Imaging (**IBMI**) at the **Helmholtz Zentrum Muenchen** (HMGU), Germany, is the ideal environment for you!

CBI is the cornerstone of a rapidly expanding bioengineering ecosystem in the Munich science area; 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. Our research aims to shift the paradigm of biological discovery and translation to address major health challenges of our time and develop the medical solutions of tomorrow.

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, engineering, chemistry, biomedicine and computer science and our pipeline frequently yields high-impact papers, successful technology spin-offs and commercialization. Our research is regularly featured in major news channels and has received broad recognition including several prestigious awards and considerable research funding from national and international sources.

We now seek a highly qualified and motivated **Post-doctoral researcher (f/m/d)** to develop novel, compact optical systems and ultrasonic sensors for biomedical applications.

The Mission:

At CBI, we are pushing the limits of resolution, depth, speed, contrast coverage, specificity and sensitivity of optical imaging. Optoacoustic imaging combines high contrast and high resolution of optical excitation in a depth comparable to that of ultrasound imaging. These characteristics give optoacoustic imaging a competitive edge over other imaging methods currently applied in biology, medicine, environmental sensing and pollution monitoring. As a next step in developing optoacoustic devices for real-world applications, we aim at miniaturizing both the illumination source and ultrasound detector in order to create low-cost, portable sensors for use in laboratories, clinics, and in the field. Furthermore, we need to understand the impact of the device in comparison with other technologies and study its performance in real clinical settings to calibrate its potential impact.

The successful candidate will develop novel miniaturized illumination sources and ultrasound detectors for optoacoustic sensing and combine them with novel signal processing techniques based on artificial intelligence.

The development process will give the successful candidate the opportunity to strengthen her/his skills on state-of-the-art electronics, lasers, optics, prototyping, 3D printing and cutting-edge computational approaches. She/he will be involved with every stage of device design, prototyping and testing, as well as with dissemination of results in publications and at conferences as well as in the form of IP production, spin-offs and commercialization.

Qualifications

- High motivation, scientific curiosity and ability to work independently
- A degree (and a PhD for postdoctoral fellows) in Physics, Optics, Engineering, Medical Technology or a related field
- A stellar academic and scientific track record
- Programming capabilities (for example, Matlab, C/C++)
- Practical experience in hardware control, data acquisition and synchronization, system development and integration
- Team player skills and enthusiasm to work in a multi-disciplinary, collaborative environment
- Excellent command of the English language
- Knowledge on the physics of semiconductors and laser diodes.

The following qualifications are considered advantageous:

- Experience in 3D printing technologies and product design and development
- Basic knowledge of optoacoustic imaging

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. We support career development, continued education and life-long learning.

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 have a 2-year contract. We offer a competitive salary and benefits depending on work experience and seniority in accordance with the public service wage agreement of the Free State of Bavaria (TV-L E 13). 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. Preference will be given to disabled candidates with essentially the same qualifications.

Opportunities for Talents

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. Please indicate “Post-doctoral fellow in optoacoustic sensor development” in the subject line.

For any question please contact:

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