Postdoctoral fellow in advanced data analysis for clinical multispectral optoacoustic tomography (f/m/d)

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 and healthcare? 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 Muench (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 and medicine. Comprising 11 inter-disciplinary laboratories and scientists from more than 25 countries, IBMI 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. IBMI researchers come from the top ranks of physics, engineering, chemistry, biology and medicine and our pipeline frequently yields high-impact papers, successful technology spin-offs and commercialization. Our research is regularly featured in major news channels and received broad recognition including several prestigious awards and considerable research funding from national and international sources.

We now seek a highly qualified and motivated postdoctoral fellow (f/m/d) to drive the development of advanced methods for data analysis for clinical multispectral optoacoustic tomography (MSOT) projects.

The mission:

By employing illumination at multiple wavelengths and ultrasound, Multi-Spectral Optoacoustic Tomography (MSOT) can detect different chromophores, such as oxygenated and deoxygenated hemoglobin to produce maps of blood oxygen saturation in soft tissues or lipids and water without the need for exogenous contrast agents. In any case, combining MSOT with contrast agents even further extends the range of applications in terms of molecular specificity. These features bring unique new opportunities for vascular, metabolic or tumor applications in non-invasive human imaging.
The successful candidate will develop advanced methods for analyzing and visualizing clinical MSOT data in order to extract enhanced information, compared to traditional imaging (e.g. ultrasound) and answer specific medical questions within the framework of clinical projects. The candidate is expected to contribute equally to data analysis and related software development and to the science exploitation of available data. Clinical MSOT data will be provided by a team of trained clinicians and the successful candidate will build upon current expertise and preliminary data to provide new creative ways for interpretation and address unmet clinical need. An essential contribution of the successful candidate will be the design and implementation of novel methods to boost the translation of MSOT imaging in the clinics. The project further includes data analysis, image reconstruction and spectral unmixing operations, necessary for visualization and quantification purposes. This project is expected to shift the paradigm in clinical diagnostics, leading to significant societal impact in health-care and potent translation into clinical diagnostics and management of vascular, metabolic or tumor diseases.

Your profile:
The successful applicant must have the following:

- A Ph.D. in Computer Science, Engineering, Physics, Optics or related discipline.
- Excellent track record of research achievement and publications in top-ranked journals.
- Strong motivation, scientific curiosity and commitment to scientific excellence.
- Genuine interest in medical imaging, biomedical applications and conduction of clinical studies.
- Expert programming skills in MATLAB.
- Proficiency in C++ and Python and previous experience with multispectral data and the management of large medical datasets are considered strong assets.
- Hands-on experience in the development and application of experimental setups in the fields of physics and electrical engineering.
- In-depth knowledge of signal and image processing and detection techniques.
- 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 and medicine 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. 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 initially have a 2-year contract, with the possibility of extension. 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 EG 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.

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 “Postdoctoral fellow in advanced data analysis for clinical multispectral optoacoustic tomography (f/m/d)” in the subject line.

For any question please contact:

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