Master student in C/C#/C++ programming for a novel intravascular NIRF-IVUS system (f/m/d)

Are you passionate about science?—full of ideas and innovative potential to drive change? Do you see yourself working in an international fast-paced, highly-competitive, scientific environment? If you are motivated by the societal impact of science and technology, if you seek an opportunity to play an active role in the development of emerging technologies for biology and healthcare; then, the Chair of Biological Imaging (CBI) at the Technical University of Munich (TUM), Germany and its integrated Institute of Biological and Medical Imaging (IBMI) at the Helmholtz Zentrum München (HMGU), is the ideal environment for you!

At CBI/IBMI we are now looking for a highly qualified and passionate **Master student** (f/m/d) to join us in the **development of a novel intravascular NIRF-IVUS system.**

CBI/IBMI is the cornerstone of a rapidly expanding bioengineering ecosystem in the Munich science area; including the TranslaTUM Research Center and the Helmholtz Pioneer Campus—which integrate bioengineering with vascular/metabolic disorders and oncology. CBI/IBMI 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 interdisciplinary laboratories with scientists from more than 25 countries, CBI/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 to develop the medical solutions of tomorrow.

Join our team and be part of our rich and dynamic research culture of enquiry and innovation. CBI/IBMI researchers come from the top ranks of physics, engineering, chemistry, biology, and medicine—frequently yielding to high-impact papers, successful technology spin-offs, and commercialization. Moreover, our studies are regularly featured in major news channels and have received broad recognition including several prestigious awards as well as considerable research funding from national and international sources.

The mission:

Cardiovascular diseases, like myocardial infarction, are the leading cause of death worldwide. While there have been several therapeutic approaches developed to improve patient outcome, we still lack the diagnostic tools to identify high risk atherosclerotic lesions. Molecular information made visible through fluorescence imaging has added significant clinical value as it has been already demonstrated successfully in different clinical fields, like cancer diagnostics. Therefore, we transfer this approach to cardiovascular imaging by combining structural information by intravascular ultrasound (IVUS) and molecular information by near-infrared fluorescence (NIRF) to identify atherosclerotic lesions.

Recently, we developed a novel 3F-NIRF-IVUS imaging catheter and a corresponding back-end system. This system includes a motorized rotary and linear stage, a fluorescence and ultrasound readout system and the data acquisition implemented in a PC. Currently, the system control and data acquisition are realized in LabVIEW but need to be transferred into C/C#.

The successful candidate will develop the system control, data acquisition and a graphical user interface in C/C# with corresponding SDKs based on established LabVIEW programming structures. The goal of this work is to increase usability and speed up data acquisition allowing robust imaging at high frame rates. Additionally, there is the option to create algorithms for on-the-fly data visualization. Upon successful completion, this work will significantly improve the NIRF-IVUS system and, thus, support relevant research and potential future clinical applications offering an unique opportunity to create a positive impact in healthcare.

Your profile:

The successful applicant must have the following:

- Strong motivation, scientific curiosity, and commitment to scientific excellence
- Student in Computer Science/Informatics, Engineering, or a related field
- Experience in C/C#/C++
- Excellent academic study record
- Team player skills and enthusiasm to work in a collaborative, multi-disciplinary, and highly competitive environment
- Excellent communication skills

The following qualifications are considered advantageous:

- Practical experience in hardware control, data acquisition and synchronization, system development and integration
- Excellent command of written and spoken English
- Practical experience with Labview /Matlab/Python

Our offer:

We offer you the unique chance to make a difference in future healthcare. At CBI/IBMI, 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/IBMI 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.

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.

Depending on your qualifications, we are happy to discuss your possible employment as a student research assistant. 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.

Please send your application to:

Dr. Dimitris Gorpas

Dimitrios.gkorpas@tum.de

Technical University of Munich (TUM)
Center for Translational Cancer Research (TranslaTUM)
Chair of Biological Imaging (CBI)
Ismaninger Str. 22

81675 Munich
GERMANY

Web Pages:

www.helmholtz-muenchen.de/en/ibmi/
www.pioneercampus.de
www.translatum.tum.de
https://www.facebook.com/MunichImaging
https://twitter.com/MunichImaging
https://www.linkedin.com/in/munich-imaging/
https://web.med.tum.de/en/cbi/home/