



INFORMATION FOR APPLICANTS

PROFESSORSHIP BIOMEDICAL IMAGING



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EXECUTIVE SUMMARY

The Department of Computer Science and Biomedical Engineering at Graz University of Technology invites applicants for the position of a **University Professor of Biomedical Imaging** with a full-time permanent contract (§98 UG).

Graz University of Technology is the oldest science and technology research and educational institute in Austria. For over 200 years, it has been an important international center for research and teaching. The university delivers top performances in its five Fields of Expertise, **Advanced Material Science; Human & Biotechnology; Information, Communication & Computing; Mobility & Production; and Sustainable Systems**. The university boasts intensive collaboration with other national and international research and educational establishments and with business and industry worldwide.

We are looking for a candidate with an **excellent scientific track record** to represent the field of “Biomedical Imaging” in research and teaching and complements the research strengths of other groups at the department. The professorship will be part of the Institute of Medical Engineering. The Institute is equipped with a **clinical high-end 3T magnetic resonance imaging (MRI) system with high performance gradients and BioMatrix sensors**, including **optical motion tracking (Magnetom Vida)**. Preference will be given to candidates with a research focus on in vivo magnetic resonance (MR) and/or multimodality imaging, and in particular, the development of new methods for diagnostic and/or experimental applications in medicine and radiology or basic science. This comprises all basic aspects of MR signal generation and analysis as well as new measurement strategies and modern reconstruction techniques, such as those involving artificial intelligence (AI). Typical areas of interest include highly accelerated robust imaging, new functional or metabolic MRI techniques, and biomarker imaging.

GRAZ UNIVERSITY OF TECHNOLOGY


In world-wide competition with comparable institutions, Graz University of Technology pursues top teaching and research in the fields of the engineering sciences and the technical natural sciences. Knowing about the needs of society and the economy is an integral part of putting together excellent education and training programs. Ultimately, the quality of the education and training at Graz University of Technology is carried by the strength of its knowledge-oriented and applied research.

DEPARTMENT OF COMPUTER SCIENCE & BIOMEDICAL ENGINEERING



Biomedical engineering is an **internationally visible research area** with a long tradition at Graz University of Technology. It has established a complete bachelor's and master's curriculum as well as a doctoral school. For interdisciplinary research, the Faculty is also embedded in the **inter-university cooperation "BioTechMed Graz"** with the University of Graz and the Medical University of Graz. This interdisciplinary network opens up the field for many current research topics and enables access to the latest technologies, methods and data at the location beyond the TU's resources.

As an innovation engine, the Faculty significantly contributes to the economy and has tremendous growth potential, with **30 start-ups with more than 1000 employees** to attest to that. The services of the Department have a great impact on TU Graz: its top position in international research and teaching, its visibility and effect on the society, its internationalizing PhD and Master studies, its inter-university cooperation and its industrial networking. The new professorship will be anchored in the Department of Computer Science and Biomedical Engineering and will strengthen the competence field „Biomedical Engineering“.

The background of the entire page is a blue-tinted photograph showing two hands shaking in a firm grip, symbolizing agreement or partnership. The hands are positioned centrally, with the fingers interlaced. The background is slightly blurred, focusing attention on the handshake.

**“THIS PROFESSORSHIP IS AN
ESSENTIAL ELEMENT OF THE
SCIENTIFIC AND STRATEGIC
ORIENTATION OF TU GRAZ.”**

HARALD KAINZ
RECTOR GRAZ UNIVERSITY OF TECHNOLOGY

PROFESSORSHIP BIOMEDICAL IMAGING



We are looking for a candidate with an excellent scientific track record to represent the field of [Biomedical Imaging](#) in research and teaching and complements the research strengths of other groups at the department.

The professorship will be part of the [Institute of Medical Engineering](#). The Institute is equipped with a clinical high-end 3T magnetic resonance imaging (MRI) system with high performance gradients and BioMatrix sensors, including optical motion tracking (Magnetom Vida). This infrastructure is shared within Graz University of Technology and jointly operated with the Department of Psychology at University Graz. We prefer candidates with a research focus on in vivo magnetic resonance (MR) and/or multimodality imaging, and in particular, the development of new methods for diagnostic and/or experimental applications in medicine and radiology or basic science. This comprises all basic aspects of MR signal generation and analysis as well as new measurement strategies and modern reconstruction techniques, such as those involving artificial intelligence (AI). Typical areas of interest include highly accelerated robust imaging, new functional or metabolic MRI techniques, and biomarker imaging.

The successful candidate should be able to comprehensively teach all methods and aspects of biomedical imaging. Teaching should include new experimental methods and the related biomedical fundamentals in our Bachelor's, Master's and PhD programs in Biomedical Engineering and Computer Science. The candidate should be an engaged mentor for our students.

Cooperation within the faculty and with scientists and clinical departments in [BioTechMed Graz](#) is expected especially in the field of neuroscience.

VIBRANT RESEARCH LANDSCAPE GRAZ



BioTechMed-Graz is a cooperation and networking initiative of the University of Graz, the Medical University of Graz, and Graz University of Technology at the interface of basic **biomedical** research, **technological** developments and **medical** applications with the aim of conducting joint research relating to health issues.

With the BioTechMed-Graz cooperation project which is geared towards sustainability and permanence, the three partner universities' target is to enhance and bundle existing competences in four large mutual research areas Molecular Biomedicine, Neurosciences, Pharmaceutical and Medical Technology, Biotechnology as well as Quantitative Biomedicine and Modeling, by creating a common cooperative platform, thus making them more visible and identifiable for science, industry and politics.

BioTechMed-Graz sees itself as a major focal point on the intersection of these disciplines and pursues a cooperation model with a unique feature on the growing Austrian health market. Its aim is to create an internationally perceivable cluster in this future market.

biotechmedgraz.at

CURRENT BIOMEDICAL ENGINEERING EXPERTISE AT TU GRAZ

INSTITUTE OF NEURAL ENGINEERING



GERNOT MÜLLER-PUTZ



SELINA WRIESSNEGGER

The Lab is one of the leading labs in brain-computer communication. We are an internationally renowned research institution with a research focus on brain-computer communication and dynamics of brain oscillations. More specifically, we have extensive expertise in EEG recording, offline and online processing of brain signals and biosignals in general, feature extraction, detection and classification of brain patterns, and neurofeedback systems.

ine.tugraz.at

INSTITUTE OF MEDICAL ENGINEERING



RUDOLF STOLLBERGER



HERMANN SCHARFETTER

The research field of the Institute of Medical Engineering is medical imaging with a focus on in-vivo nuclear magnetic resonance. Activities focus on the development of new methods and technologies for faster imaging, for the quantification of biomarkers and for the representation of molecular processes. To achieve these goals, MR technologies are integrated with state-of-the-art mathematical and information technology methods and new biophysical models for signal description and quantification are developed. In a separate research group, a completely new class of contrast agents for molecular MR imaging is being developed.

imt.tugraz.at

INSTITUTE OF HEALTH CARE ENGINEERING



CHRISTIAN BAUMGARTNER



THERESA RIENMÜLLER



JÖRG SCHRÖTTNER

The Institute for Health Care Engineering is engaged in the development, evaluation and validation of new point-of-care and sensor technologies as well as the analysis, modelling and simulation of biophysical and biomedical processes with the aim to establish new technical approaches to support diagnosis and therapy.

hce.tugraz.at

INSTITUTE OF BIOMECHANICS



GERHARD A. HOLZAPFEL



GERHARD SOMMER

We are dealing with experimental and computational biomechanics and mechanobiology with an emphasis on soft biological tissues, the cardiovascular system including blood vessels and the heart in health and disease, therapeutic interventions such as balloon angioplasty and stent implantation, polarized light and second-harmonic imaging microscopy as well as medical image processing.

biomech.tugraz.at

INSTITUTE OF BIOMEDICAL INFORMATICS



LEILA TAHER

The Institute of Biomedical Informatics develops and uses bioinformatics approaches to understand the biology of gene regulation. We are interested in advancing our knowledge of the structure, function and evolution of regulatory sequences; as well as gaining a predictive understanding of disease processes at the network level, to enable targeted and personalized therapeutic interventions.

bioinfo.tugraz.at



WHAT LIFE IN GRAZ WILL BE LIKE

CULTURAL AND UNIVERSITY TOWN IN THE
STYRIAN TUSCANY. WITH PLENTY OF SUN!

CITY OF KNOWLEDGE

GRAZ HAS BEEN A UNIVERSITY TOWN SINCE 1585

Know-how from Graz goes international. Six universities with more than 16 faculties form the basis of the excellent international reputation of Graz as a research and academical location. With nearly 60.000 students of 290.000 inhabitants, Graz more than deserves the title “student town”.

CULTURAL CAPITAL

CITY OF CONTRASTS

Graz, the exciting city of culture, and particularly its historic city centre, offers the ideal location to stage seminars, trade fairs or conferences. It is not by chance that Graz is a UNESCO World Cultural Heritage site. The historic city centre around Schlossberg hill has been growing for centuries and became a township well worthy of admiration. Since the Middle Ages, the unique and well preserved architectural styles spanning from Gothic, Baroque, Renaissance, Art Nouveau and, of course, the modern, have not only seen an increase in value but are also indicative of a sense of tradition and art. In fact, contemporary art and architecture enrich the cultural scene as much as classical culture: the Graz Opera House, theatres and festivals of classical music. In 2003, Graz was also acclaimed European Capital of Culture. “The friendly alien” art centre and the Island in the Mur still bear witness to that year of celebration.



CAPITAL OF CULINARY DELIGHTS

MEET WITH DELIGHT

Styria offers many local food specialties, like Styrian pumpkin seed oil, Käferbohnen beans, Grazer Krauthäuptel lettuce, and award-winning wines. The people of Graz have a unique gift for enjoying life and the Mediterranean atmosphere is palpable everywhere.

Sunny spots in cheery wine gardens, promenades in the historic city centre and narrow, atmospheric alleyways, combined with over 2,300 hours of sunshine convey a southern European flair.

CONFERENCE VENUE GRAZ

WHERE SCIENCE MEETS ART, CULTURE AND PASSION

Organisers of scientific conferences in particular have appreciated Graz as a conference destination for many years. Being Austria's second largest city as well as an important research and business location, Graz has, with good reason, evolved into a renowned conference venue that enjoys an excellent international reputation. Every year, approximately 45000 conference guests make use of the historic and modern congress centres. They appreciate the city's easy accessibility, as much as its sophisticated cuisine and famous Austrian hospitality. A variety of supporting programmes and day excursions, served with Styrian delicacies and regional wines, add culinary value to any event. Worth mentioning is the pleasant size of the Styrian capital. In fact, many of the excellent hotels are within walking distance of the conference centres. The rich choice of sights and cultural events is another decisive reason for choosing Graz.

WELCOME TO GRAZ!



**“ THIS PROFESSORSHIP
STRENGTHENS THE EXISTING
RESEARCH EXCELLENCE IN
BIOMEDICAL ENGINEERING AT
TU GRAZ AND IS ANOTHER
IMPORTANT ASSET TO KEEP THE
INTERNATIONAL VISIBILITY.”**

RODERICK BLOEM
DEAN, FACULTY OF COMPUTER SCIENCE AND
BIOMEDICAL ENGINEERING

**APPLY
NOW!**





EMPLOYMENT REQUIREMENTS

- A completed university education with a doctoral degree (PhD)
- A relevant habilitation (venia docendi) or an equivalent qualification
- Excellent scientific achievements
- Integration in the international research community
- Excellent didactic skills
- Management and leadership abilities
- Excellent command of English and command of German or the willingness to acquire it

We also value

- International experience
- Experience with acquisition of research grants and/or industrial collaboration
- Gender and diversity competence

We expect the successful candidate to transfer her or his residence to the area of Graz.

EQUAL OPPORTUNITY EMPLOYER

Graz University of Technology aims to **increase the proportion of women**, in particular in management and academic staff, and therefore qualified female applicants are explicitly encouraged to apply. Until a balanced ratio of men and women has been achieved at the university, preference will be given to women if applicants are equally qualified.

Graz University of Technology actively promotes **diversity and equal opportunities**. Applicants are not to be discriminated against in personnel selection procedures on the grounds of gender, ethnicity, religion or ideology, age, sexual orientation (Anti-discrimination). People with disabilities who have the relevant qualifications are expressly invited to apply.

OUR OFFER

The advertised position is a tenured full professorship with a competitive salary. The university will provide funding for one or more PhD students and the necessary research equipment. A combination of national and European agencies provides an excellent funding landscape and ample opportunities exist to collaborate with industry.

Graz University of Technology provides excellent working conditions in a vibrant scientific community, combined with the outstanding living quality of the Graz area. We support your partner's career through a dual career service and we assist with the relocation process.

HOW TO APPLY

Interested applicants are requested to send a detailed application in English language including

- a CV including a description of research and teaching experience,
- a teaching statement and a research statement (previous achievements and future perspectives),
- a list of publications including a list of the five most important publications,
- copies of certificates and diplomas and
- the application form available via bit.ly/bimg_form

The applications should be sent to the Dean of the Faculty of Computer Science and Biomedical Engineering at Graz University of Technology,
Roderick Bloem (applications.csbme@tugraz.at).

For further questions, please contact **Gernot Müller-Putz** (gernot.mueller@tugraz.at).

IMPORTANT DATES

The deadline for applications is **26 November 2020**.

The hearings for the professorship will take place in the period of **22 to 26 February 2021**. Candidates should be available for interviews in this period.



APPLY
NOW!



CONTACT

Candidates should submit their detailed application to the Dean of Computer Science and Biomedical Engineering, Prof. **Roderick Bloem** (applications.csbme@tugraz.at).

For questions please contact Prof. **Gernot Müller-Putz** (gernot.mueller@tugraz.at).

More on csbme.tugraz.at.



www.tugraz.at