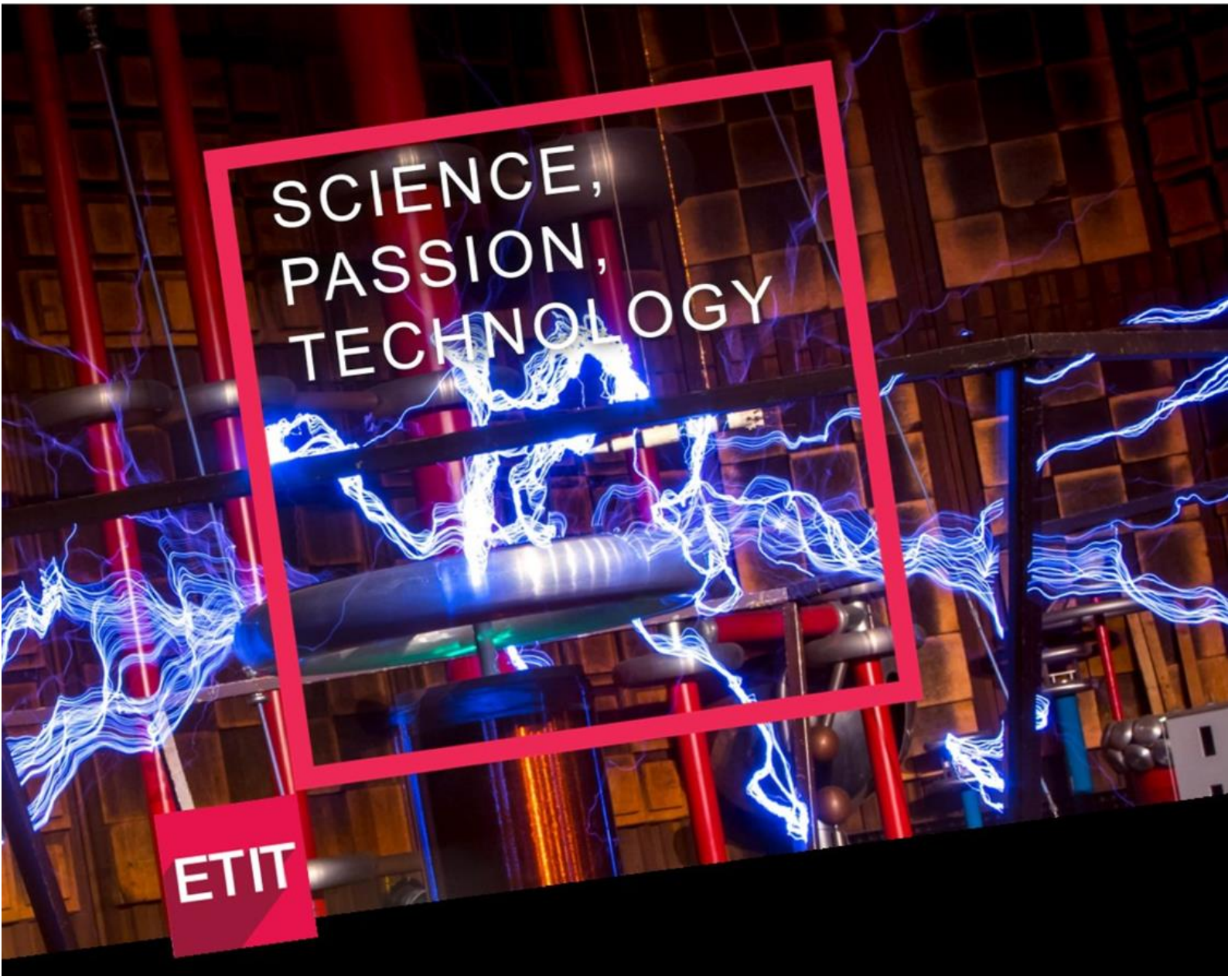


INFORMATION FOR APPLICANTS

Full Professor of Autonomous Systems

Faculty of Electrical and Information Engineering
Graz University of Technology, Austria, www.tugraz.at

Graz University of Technology

Graz University of Technology (TU Graz) is the oldest science and technology research and educational institute in Austria. For more than 200 years, it has been an important international center for research and teaching. The university has 3,800 employees and focuses on five fields of expertise:

- **Advanced Material Science** aims to understand the structure and function of the smallest components through advanced characterization techniques and modeling, to develop new materials and to assemble them in special processes. Focus is on improving existing materials, and designing them to be lighter, more flexible, responsive, cheaper or robust.
- **Human & Biotechnology** develops devices and methods for medical applications and therapies, for example using innovative biosignals and image processing. Biotechnology focusses on using enzymes and living microorganisms such as bacteria, fungi and yeast in technical applications.
- **Information, Communication & Computing** aims to master the challenges of the information age, for example on data security and the efficient use of the ever increasing volume of data. Focus is on data processing and storage, wireless communication technologies as well as on hardware and software for computers, networks and satellite systems.
- **Mobility & Production** investigates novel vehicle technologies and drive systems as well as economical and time-saving product manufacturing processes. Research results deliver ground breaking solutions to today's challenges in terrestrial and air traffic, aerospace, and production engineering and management.
- **Sustainable Systems** focuses on global challenges like growing population, energy consumption, environmental pollution, and climate change. Research topics range from sustainable urban planning, innovative building technologies and energy systems to the developing renewable energy sources, intelligent energy networks, and green mobility.

Regarding teaching and studies, TU Graz offers 19 bachelor, 34 master, and 14 doctoral programmes as well as 9 postgraduate programmes for 13,700 students.

The university enjoys intensive collaborations with other national and international research and educational organizations as well as with business and industry worldwide.

www.tugraz.at

About Graz

Graz, the second largest city in Austria, is situated south-east of the Alps and enjoys an almost Mediterranean climate and lifestyle. The location in a cultural borderland close to Slovenia, Hungary, and Italy is reflected in an exceptional townscape. The medieval old town is one of the largest and best-preserved in central Europe and was named a UNESCO world heritage site.

Its magnificent buildings bear witness to over 850 years of architecture in the city, such as the Landhaus, also home to the Styrian Armory and its 30,000 weapons and suits of armor, the cathedral and the mausoleum, Eggenberg Castle and the Grazer Burg with its double-spiral staircase. These ancient edifices merge in unique harmony with state-of-the-art works by internationally renowned architects such as for example the Kunsthaus Graz, the Joanneumsviertel, MUMUTH or the green houses in the Botanical Gardens.

The rich offerings of Graz to its visitors are reflected by a number of awards: Graz was the “Europe Capital of Culture 2003”, is a member of the “UNESCO City of Design” network, and was named the Austrian “Capital of Culinary Delights”. Graz is also a young and lively city with more than 50.000 students enrolled into the six universities.

Graz is embedded into beautiful and diverse landscapes, with the wine growing region known as “Styrian Tuscany” in the south, a region rich of hot springs and spas in the east, and the Alps in the north and west.

Facts and Figures about Graz:

- Residents: 294,236
- Universities: 6 universities | 2 polytechnics
- Students: over 50,000
- Total area: 127.5 km² (of which 50 % greenarea)
- Elevation: 353 m
- Museums: 34
- Website: https://www.graztourismus.at/en

Faculty of Electrical and Information Engineering

The research activities at the 12 institutes of the Faculty of Electrical Engineering and Information Technology (ETIT) are trend-setting and leading in many applied and theoretical areas. High technology from Graz is used in modern locomotives as well as on board of space missions, in weather radar as well as in the automotive domain and in medical diagnostic technology. The faculty is significantly involved in European and international research projects, but also in national programs such as COMET competence centers and Christian Doppler laboratories. Modern research and teaching requires interdisciplinary cooperation, as practiced at the faculty, for example in complex field calculations for new sensors and wireless communication systems, in digital signal processing, in embedded hardware and software, or in mobile robotics.

www.etit.tugraz.at

ETIT

Power Engineering
- Institute of Electric Drives and Machines incl. professorship for Power Electronics
- Institute of Electrical Power Systems
- Institute of High Voltage Engineering and System Performance
- Institute of Electricity Economics and Energy Innovation

Fundamentals
- Institute of Fundamentals and Theory in Electrical Engineering
- Institute of Automation and Control incl. Endowed professorship for Automated Driving

Information and Communication Technology
- Institute of Electronics incl. Endowed professorship for Robust Electronic Systems
- Institute of Communication Networks and Satellite Communications
- Institute of Signal Processing and Speech Communication incl. professorships for Intelligent Systems and for Acoustics
- Institute of Technical Informatics incl. professorship for Embedded Automotive Systems
- Institute of Microwave and Photonic Engineering
- Institute of Electrical Measurement and Sensor Systems

Full Professorship:
Autonomous Systems – Topics and Expectations

We are seeking a person with an outstanding qualification and scientific track record who is able to represent the area “Autonomous Systems” in research and education with commitment.

The successful candidate is expected to focus research and teaching on theoretical foundations, methods, and their application in the field of autonomous systems, in particular on several of the following topics:

- Fusion, filtering, and processing of sensor data for environmental perception
- Methods and algorithms for autonomous decision making, action planning, and control
- Methods for interaction and cooperation between autonomous systems and with the environment (e.g., self-organization and distributed decision making)
- Design, realization and verification of autonomous systems with regard to various properties such as fault tolerance, safety, security or real-time
- Applications of autonomous systems, e.g., in the fields of transportation, robotics, avionics, logistics, and production

The duties also include teaching courses in bachelor’s and master’s degree programs, primarily in Electrical Engineering, Electrical Engineering and Sound Engineering, Information and Computer Engineering, and Digital Engineering, as well as special lectures from the candidate’s own research areas. We expect the willingness to teach, intensively supervise students, engage in interdisciplinary cooperation, and actively participate in academic self-administration.

Collaboration with existing research groups of the faculty and Graz University of Technology is desirable as well as cooperation with surrounding and international companies, other universities, and research institutions.

Full Professorship:
Autonomous Systems – Selection Criteria and Application Details

Formal employment criterion is a completed Austrian or equivalent foreign university degree, including a doctorate, appropriate to the position.

Major selection criteria are:

- Outstanding scientific qualification (evidenced by a habilitation/venia docendi or equivalent)
- Involvement in the international research community
- Excellent didactic skills and experience with teaching at university level
- Gender and diversity competence
- Qualification and suitability for leadership
- Industry experience and/or experience in cooperating with industry, research institutions or universities
- Experience in project management and the acquisition of research funding

To represent the field internationally, excellent written and spoken English skills are required. If German language skills are not available, the willingness to learn German is expected.

Relocation of the permanent residence to the Graz area is required.

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. 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 and who have the relevant qualifications are expressly invited to apply.

Applicants are requested to submit their application in English and in digital form (curriculum vitae, certificates and diplomas, list of publications, description of the scientific and professional background, the five most important publications, overview of previous research and teaching activities, concepts for the future development of the area in research and teaching), using the mandatory application form available at https://www.tugraz.at/go/professorships-vacancies, no later than October 27, 2021. Hearings are planned for January 17-21, 2022. Applicants are requested to reserve these dates.

Related Institutes at TU Graz

Several institutes at TU Graz work on control systems, embedded hardware and software, communication, signal processing, and sensor technology, and offer a rich ecosystem for collaboration. Some of them are:

Institute of Automation and Control (IRT)

In teaching and research, the Institute of Automation and Control focuses on the modelling and simulation of complex dynamic systems and on the design of robust feedback loops. The main contributions of the Institute belong to the areas of

- Networked Systems
- Optimization Based Control
- Variable Structure and Sliding Mode Control Systems
- Parameter Estimation and System Identification
- Sensor Fusion

www.irt.tugraz.at

with applications in the automotive industry, autonomous driving, pharmaceutical engineering, process technology, biotechnology, and medicine.

Martin Horn

Markus Reichhartinger

Martin Steinberger

Institute of Technical Informatics (ITI)

The ITI offers research and education on modern networked embedded systems (such as the Internet of Things and Cyber-Physical Systems) with focus on software, hardware, and networking. A special focus is on low-power wireless mesh networks at the data link and network layers. The institute coordinates the TU Graz LEAD project “Dependable Internet of Things” and operates the D-Cube wireless mesh networking testbed. The four working groups of the institute make significant contributions to improve dependability, real-time properties, safety, security, and efficiency of these systems to enable novel applications:

- Networked embedded systems
- Embedded automotive systems
- Hardware/software co-design
- Industrial informatics

www.iti.tugraz.at

Kay Uwe Römer

Carlo Alberto Boano

Marcel Baunach

Related Institutes at TU Graz

Institute of Communication Networks and Satellite Communications (IKS)

The IKS is Austria's leading scientific institution in satellite communications which is now active in applied and experimental space research for more than 50 years. Founded in 1969, the focus has been on wave propagation, satellite communications and networks, advanced modulation/ synchronization/coding methods, multiple access schemes, free-space optical solutions, interference mitigation and fade countermeasure techniques, the application of space technology, and the development of space-qualified hardware and software. The following research areas are currently established at the institute:

- Satellite communications
- Microwave propagation and antennas
- Small satellites

www.iks.tugraz.at

Wilfried Gappmair

Franz Teschl

Manuela Wenger

Institute of Signal Processing and Speech Communication (SPSC)

In 2000, the SPSC Lab was founded as a research and education center in nonlinear signal processing and computational intelligence, algorithm engineering, as well as circuits & systems modeling and design. It covers applications in wireless communications, speech/audio communication, and telecommunications. Research at the SPSC Lab addresses fundamental and applied research problems in five scientific areas:

- Wireless communication
- Audio and acoustics
- Intelligent systems
- Nonlinear signal processing
- Speech communication

www.spsc.tugraz.at

Gernot Kubin

Klaus Witrisal

Franz Pernkopf

APPLY NOW

to the
Dean of the Faculty of Electrical and Information Engineering
Univ.-Prof. DI Dr. Wolfgang Bösch, MBA
Inffeldgasse 18/EG, 8010 Graz, Austria
E-Mail: dekanat.etit@tugraz.at

Application deadline: October 27, 2021
Hearings are planned for January 17-21, 2022.

Contact for questions: Prof. Marcel Baunach (baunach@tugraz.at)

Application form available at:
https://www.tugraz.at/go/professorships-vacancies

Graz University of Technology
Technische Universität Graz
Rechbauerstraße 12, 8010 Graz, Austria
www.tugraz.at

3 Campus Areas/*3 Campus-Bereiche:*
Campus Alte Technik
Campus Neue Technik
Campus Inffeldgasse

Follow TU Graz:
www.tugraz.at/go/follow

GRAZ
STYRIA
AUSTRIA
EUROPE

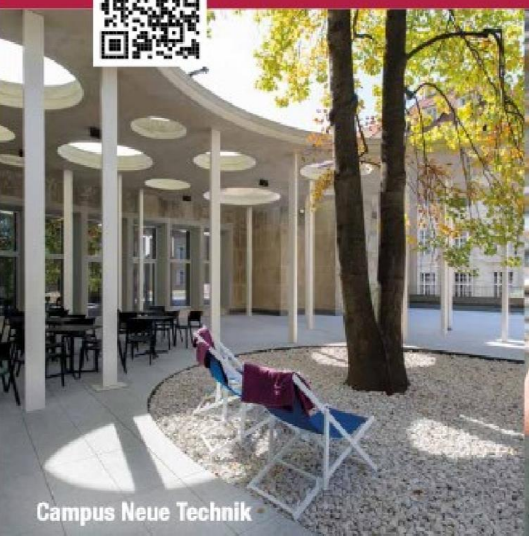
CITY OF GRAZ/*STADT GRAZ*

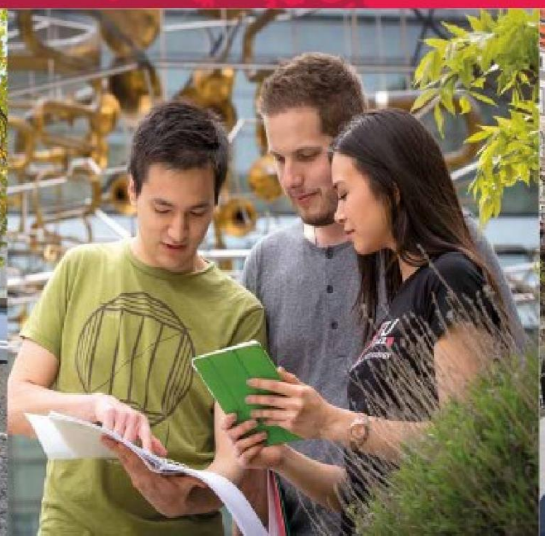
- **UNESCO world heritage site/*UNESCO Weltkulturerbe***
- **City of Design**
- **Capital of Culture/*Kulturhauptstadt Europas***
- **Eight higher education institutions, 60,000 students/ *Acht Universitäten und Hochschulen, 60.000 Studierende***

REGION OF STYRIA/*BUNDESLAND STEIERMARK*

- **Science and business location/ *Wissenschafts- und Wirtschaftsstandort***
- **4.9 % regional R&D quota/*4,9 % regionale F&E Quote***

Lunghammer – TU Graz; Graz: Graz Tourismus – Harry Schiffer





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