

PROFESSOR FOR SYSTEM SOFTWARE



INFORMATION FOR APPLICANTS

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1. The Johannes Kepler University Linz (Austria)

Firmly anchored in the region, the Johannes Kepler University Linz (JKU) also considers itself a university with a strong international outlook, pursuing an unwavering commitment to quality in research and education. The JKU aims to consistently move forward and advance to become one of Europe's top universities.

JKU researchers (approximately 170 professors and 2,700 academic employees) continuously pursue new knowledge and insight, deepening our insight in terms of what we know and understand today. The university also places great value on knowledge transfer, further deepening dialogue with members of society, the business community, and cultural establishments. As Upper Austria's largest research and educational institution, the JKU not only focuses on both education and research, but also on the regional and global challenges of our time, particularly those as outlined in the JKU's third mission (science with and for society).

Today, as an effectively positioned university, the JKU hones core skills and expertise in technology (engineering, computer sciences, natural sciences), social sciences, economics & business, education, law, and medicine. The JKU is predestined to engage in the academic and scientific challenges of our time, particularly in regard to digitalization and sustainability as well as values in support of diversity and inclusion. We not only foster a visionary approach, the JKU emphasizes and practices interdisciplinary and transdisciplinary research and academics.

The JKU is strongly committed to supporting social responsibility that extends beyond research and education. For example, food products served at the university's award-winning cafeteria stems from organic farms. The university established the Linz Institute of Technology (LIT) Open Innovation Center (OIC) on campus, a facility at the crossroads of academia, science, research, and real-world practices designed to support and bring about a circular economy and sustainable polymers. Recent campus enhancements complement the quality of university facilities, providing a contemporary infrastructure that not only inspires creativity, but also serves as a dynamic work, recreational, and living space for university employees, students and local residents alike.

We also offer a comprehensive onboarding process for new employees. Whether you are coming to the JKU from elsewhere in Austria or from abroad, our staff at the Office of Dual Career Services and at the JKU Welcome Center can assist to find housing, provide information about local schools and, of course, help your spouse or partner find suitable employment so everyone feels more quickly at home in Linz. The JKU aims to pursue its objectives and embrace the coming challenges by attracting students and faculty who also aspire to play a key role in contributing toward a future that not only supports technological advancement and progress, but a future that also serves the people and conserves the environment.

2. The Faculty of Engineering and Natural Sciences

Students enrolled at the JKU can choose from over 30 academic degree programs in engineering and natural sciences offered at 59 institutes. The JKU has a strong tradition of conducting advanced, cutting-edge research at the forefront of technology and engineering. Always a step ahead, the JKU introduced the world's first academic degree program in Mechatronics in 1990 and in 2019, the university launched two unique academic degree programs, one in Artificial Intelligence and another in Medical Engineering. Both programs bring medical and engineering expertise together. A high number of publications, research contracts, Austrian Science Fund projects, EU projects, special research areas, and dissertations are a testament to the Faculty's scientific and scholarly achievements. By creating competence centers, housing Christian Doppler laboratories, and supporting spin-off companies, technology-oriented companies appreciate the JKU Faculty of Engineering and Natural Sciences as an internationally valued partner.

3. The Department of “Computer Science”

The department of Computer Science (<http://informatik.jku.at>) at the Faculty of Engineering & Natural Sciences consists of the following institutes:

- Institute for Application-Oriented Knowledge Processing
- Institute of Computational Perception
- Institute for Complex Systems
- Institute of Computer Graphics
- Institute for Formal Models and Verification
- Institute for Integrated Circuits
- Institute for Machine Learning
- Institute of Networks and Security
- Institute of Pervasive Computing
- Institute of Signal Processing
- Institute of Software Systems Engineering
- Institute for Symbolic Artificial Intelligence
- Institute for System Software
- Institute of Telecooperation

The JKU was the first university in Austria to introduce studies in Computer Science back in 1969. Today, over 1,000 students are enrolled in Computer Science. The Bachelor's and Master's degree programs in Computer Science are internationally renowned; this is reflected in relevant program rankings. Recently, new Artificial Intelligence Bachelor's and Master's degree programs were

introduced. Many computer scientists at JKU are research leaders in their fields (including ERC and Wittgenstein awardees). Computer Science at the JKU is distinguished by outstanding fundamental research and close collaboration with industry.

4. General Requirements for the Professorship in “System Software”

At JKU, system software is a broad field dealing with programming languages/techniques, compilers, virtual machines, as well as with system tools such as debuggers, editors, or visualizers. The field is represented with several courses in the Bachelor's and Master's curriculum in Computer Science and has a strong research track record, especially in the area of dynamic compiler optimizations and virtual machines, with many years of industrial cooperation, which should ideally be continued. Additional synergies in research and teaching within the Department of Computer Science arise in the areas of operating systems, system security, formal verification, software engineering, artificial intelligence, embedded, mobile, and cyber-physical systems.

This professorship should actively collaborate with the existing efforts and develop complementary research and teaching programs, for example in the university-wide focus areas of sustainability and secure systems, to further strengthen the foundational focus on system software.

The successful candidate is expected to become head of the Institute of System Software.

4.1. Research

Research in System Software encompasses a broad range of topics that address challenges and opportunities in the design, implementation, optimization, and management of foundational software components. Special areas of research could include e.g.:

- Compiler construction and optimization
- Runtime systems, virtual machines, and sandboxing
- Programming language theory, design, and implementation
- Domain-specific languages and language workbenches
- Security and privacy in system software
- Run-time & energy efficiency and sustainability
- Virtualization and containerization
- Performance analysis and optimization
- System software for embedded & real-time systems
- Testing and verification of software systems

The candidate's professional background will be given a higher priority than the specialization they are representing. Furthermore, the applicants should highlight potential collaborations with different institutes of the Computer Science Department, with the Linz Institute of Technology (LIT), and the Faculty of Engineering & Natural Sciences.

The candidate's application regarding their qualifications in research will be considered under the following criteria:

- Relevance of the applicant's research profile to the above-mentioned research fields.
- Doctoral degree and habilitation (venia docendi), or a comparable post-doctoral qualification, in a subject related to the above-mentioned research areas (enclose supporting certificates).
- Academic/scientific reputation demonstrated through high-quality publications in internationally renowned peer-reviewed journals and at conferences on subjects with a high degree of relevance in the position's fields of activity (list of publications, attachment of the 5-8 publications most relevant for the position), scientific presentations (list of invited talks and lectures), awards, etc.
- Scientific activities at universities, research institutions, or industrial companies at international level.
- Documented realization of research results in practice (e.g., patents, standardization or regulation efforts, collaboration with industry).
- Editorial and reviewing activities, conference organization, etc.
- International experience demonstrated by stays abroad, successful cooperation with international universities and research institutions, or the involvement in international research.
- Acquisition of research funding, management of or participation in research projects (function, project volume, funding organization or contracting party, duration, principal investigator and/or number of full-time employees when leading a project).
- Presentation of the research concept for a possible position as Professor for System Software at JKU (in the context of previous research).

When assessing the candidates' accomplishments, performance, and future potential, the JKU will take the candidates' individual background and personal history into account by acknowledging that academic and professional success and accomplishments can happen at different stages in life (and can include periods of reduced employment, or career interruption on account of having to provide care, childcare, etc.). In this regard, qualifications are assessed and evaluated in terms of equal opportunity, taking life-course factors, such as academic age, into account.

4.2. Teaching

The JKU is committed to research-guided teaching. The successful applicant is expected to offer university-level courses in Computer Science to its full extent as well as courses in their area of specialization. The applicant is expected to actively take part in the educational programs of Computer Science as well as neighboring / other relevant curricula. In the case of this opening, teaching may particularly involve the following courses and associated topics, but is open to the successful candidate's special interests:

Bachelor level (mostly taught in German):

- Software Development 1 and 2 lectures and associated practical courses
- Compiler Construction

Master level (taught exclusively in English):

- System Software
- Principles of Programming Languages

As many programs at the JKU are international, the successful candidate should be proficient in English and able to hold university-level courses and presentations in English.

The candidate's application regarding his/her qualifications will be considered under the following criteria:

- Didactic skills.
- Experience in holding university-level courses (list of previously held courses, course evaluation results and, if available, any participation in university-level didactic continuing education courses and/or programs).
- Experience in supervising academic work of students such as Master's/Diploma degree theses as well as PhD theses (list of supervised theses).

4.3. Additional Requirements

The successful candidate is expected to collaborate with research institutions and facilities as well as with industry in Austria and abroad. The cooperation efforts should result in attracting external funding. We also expect the willingness to carry out administrative tasks and to participate in committees within the scope of academic self-administration. Appropriate knowledge of the German language is necessary for this. If this is not given, it is expected that it will be acquired within the first five years. In addition to

key professional qualifications and management experience, the successful candidate should also have a strong social skill set.

The candidate's application regarding his/her qualifications will be considered under the following criteria:

- Previous research collaborations with partners at other universities, research institutions, and industry.
- Proof of qualifications of the ability to manage an organizational unit, research projects, etc.
- Proof of qualification and ability of cooperative leadership, in human resource development, and in scientific public outreach; in accordance with the JKU's "Plan for the Advancement of Women", experience in human resource development and advancement opportunities for women and participation in gender mainstreaming and diversity projects are also relevant selection criteria. Corresponding documentation, if available, should be included.

4.4. Activities – Significance and Time Span

Overall, the fields of research and teaching are equally important.

A balance between research, teaching and independent administrative tasks is desired; approximately 40% teaching, 40% research, and 20% to address department administrative tasks and responsibilities. The successful candidate is also expected to actively and independently participate in administrative committees at the university.

5. Legal Contingencies

Effective as of January 1, 2004, the structure of Austrian universities has been completely re-organized. They are independently financed on the basis of a three-year service level agreement with the Austrian government, have a global budget at their disposal, and are not subject to any directives by the Austrian Federal Ministry of Science and Research.

5.1. Terms of Employment

All terms of employment, including a university professorship, are subject to the Private Sector Employees Act. A work contract between the university and the appointed professor confirms the professor's appointment. The Salaried Employees Act and the collective agreement for university employees provide the legal framework for all related labor, social, and pension conditions.

An evaluation of all teaching and research activities will be conducted after a 5-year period to assess the fulfillment of all target agreements.

5.2. Pension Regulations

5.2.1. Pension

A pension account at the Pension Insurance Company for Employees (PVA) provides the basis to calculate the amount of pension. All pension account holders are registered for annual partial credits during insurance periods in the amount of 1.78% of the annual contribution basis and these are capped at the maximum assessment basis. The sum of the partial credits is the total credits that are re-valued annually. The total credit divided by 14 equals the amount of gross monthly pension. More information about the pension you receive directly from the state, please contact the PVA.

5.2.2. Company Pension Fund for University Professors

In compliance with the Universities Act 2002, a special pension scheme is provided for university professors and has been agreed upon in a Collective Agreement. The contribution payment made by the university is 10% for the set minimum salary as stated in the collective agreement. Voluntary salary payments agreed upon aside from the collective agreement minimum salary are not a part of the base calculation of the contribution payments.

6. Salary

The amount of the minimum salary for Group A 1 (Professorship) has been determined in the collective agreement for university employees and is a gross annual salary of 89,075.00 Euros per year (last update: 2024). Payment is allocated in 14 equal amounts, whereby two parts are special allocated payments.

The position as Professor for “System Software” provides a provision (on a voluntary basis) to agree on a salary over the minimum salary set by the collective agreement.

After a positive evaluation every six years – 4 times in total – there will be an advance to the next pay grade in accordance to the salary bracket in collective agreement for job category A 1.

7. Application Procedure

Prospective applicants for the professorship position “System Software” are requested to send the following application and requested documentation in electronic form to: application@jku.at.

Note: All application documents should be submitted in English and in PDF format.

7.1. General Information

- Applicant form
- Letter of Intent (1 page)
- Tabular Curriculum Vitae
- Academic diplomas (Doctorate, Post-Doctorate [Habilitation])

7.2. Research

- Successful completion of a post-doctoral degree (venia docendi) or a comparable post-doctoral qualification
- **Publication list**, attachment of the 5-8 of the most relevant publications
- Evidence of **scientific presentations/talks** as an invited speaker (list of invited talks)
- Evidence of **international experience** demonstrated through longer stays abroad, cooperation efforts with international universities, research facilities, and companies as well as the involvement in the international research community
- List of **acquired research funding**
- Management of or participation in **research projects** (function, project volume, contracting party and/or funding organization, duration, principal investigator and/or number of full-time employees when managing the project)
- **Research concept for future activities** as the professor for System Software at the JKU (including your own previous activities and work)

7.3. Teaching

- List of previously held **courses**, course evaluation results and, if available, any participation in university-level didactic continual education courses and/or programs
- List of supervised theses from the last five years
- Teaching concept

7.4. Miscellaneous

- List of previous **research collaborations** with partners at other universities, research institutions, and industry in Austria and/or abroad
- Proof of qualifications of the ability to manage an organizational unit, research projects, etc.

- Proof of qualification and ability of cooperative leadership, in human resource development, and in scientific public outreach; in accordance with the JKU's "Plan for the Advancement of Women", experience in human resource development and advancement opportunities for women and participation in gender mainstreaming and diversity projects are also relevant selection criteria. Corresponding documentation, if available, should be included.

8. Information

If you have any questions about the position, please contact Univ. Prof. Dr. René Mayrhofer (+43 (732) 2468 4121, rene.mayrhofer@jku.at).