JOHANNES KEPLER
UNIVERSITÄT LINZ

PROFESSORSHIP FOR SECURE SYSTEMS

INFORMATION FOR APPLICANTS

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JOHANNES KEPLER UNIVERSITÄT LINZ

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1. The Johannes Kepler University Linz (Austria)

The Johannes Kepler University Linz (JKU Linz, http://www.jku.at) is a young European university with an expert and accomplished focus on the academic areas of social and economic sciences, law, natural sciences and engineering. The studies of Human Medicine were added in 2014. During its fifty year history, the university has achieved a national and international standing with its manifold achievements in research and teaching. The JKU is a campus-style university located north of the city of Linz. The unique campus environment provides close proximity between all disciplines. Interdisciplinary collaboration, innovative base-knowledge research, and close ties to local businesses and the business community have helped to establish its principal direction. By upholding principles of unity in research and teaching as well as fostering advanced methods of knowledge transfer, the JKU Linz generates and provides services for the greater good of society, the business community, fine arts and culture. Core target groups include students, the scientific community as well as organizations representing private and public life.

As the largest institution of research and education in Upper Austria, and thus as a knowledge transfer center, the university contributes to the continual support and development of Upper Austria as a dynamic economic region. The JKU is also actively involved in competence centers, and has developed spin-off programs that support the establishment of new companies. The JKU's mission statement defines and outlines the university's basic principles for future development and its strategic concept.

A special feature of the university is the campus-style layout and easy access to all four faculties

- Faculty of Social Sciences, Economics & Business
- Faculty of Law
- Faculty of Engineering & Natural Sciences
- Faculty of Medicine

on 350,000 m² of land located in a northern section in the city of Linz.

2. Linz Institute of Technology (LIT)

LIT was created as a comprehensive umbrella institute. As part of a matrix structure, LIT aims to improve networking among researchers at different faculties and subject areas in the field of technologies and stimulate high-quality interdisciplinary technological research through competitive funding allocation. Excellence and performance-based financing defines LIT's value system.

See: www.jku.at/lit for detailed information.

3. The Academic Area of “Computer Science”

Die am LIT angesiedelte Professur steht im engen Zusammenhang mit dem Fachbereich Informatik (http://informatik.jku.at) an der Technisch-Naturwissenschaftlichen Fakultät. Dieser besteht aus folgenden Instituten:

- Institute of Application-Oriented Knowledge Processing
- Institute of Computational Perception
- Institute of Computer Architecture
- Institute of Computer Graphics
- Institute of Formal Models and Verification
- Institute of Integrated Circuits
- Institute of Machine Learning
- Institute of Networks and Security
- Institute of Pervasive Computing
- Institute of Signal Processing
- Institute of Software Systems Engineering
- Institute für Systemsoftware
- Institute of Telecooperation

The JKU was the first university in Austria to introduce studies in Computer Science back in 1969. In the meantime, over 1,000 students currently study Computer Science. The Bachelor’s and Master’s degree programs in Computer Science are internationally comparable; correlative program ranking reviews in this academic area have yielded strong, admirable results. In the area of research, computer scientists from Linz are highly sought-after and considered high-caliber scientists and academics, many of whom are leaders in their fields (including ERC and Wittgenstein award recipients). Computer Science at the JKU is distinguished by outstanding base-knowledge research and close collaboration with industry.

4. Requirements for the Position “Secure Systems”

IT system security - both in terms of operational security as well as protecting against deliberate attacks - will be one of many decisive factors when it comes to future applications. Current studies estimate that system failures caused directly by ransomware such as "WannaCry" or "Petya / NotPetya" cost up to 5 billion USD per year alone. Recent security breaches, such as "Meltdown" and "Specter", have attracted worldwide attention, continuing to underscore the importance of these issues. Embedded networked systems found in autonomous cars, medical technology, automated production, smart homes, and critical infrastructures are becoming increasingly important and depend both physically and socially on secure and correct software and hardware systems. Additional challenges must also be addressed in

the near future (for example, in the form of quantum computers which can easily bypass much of today's encryption techniques). Designing safe and correct systems is therefore becoming a key building block for future applications and has proven to be a key economic factor.

The Johannes Kepler University has defined the development of safe and correct systems in the area of Computer Sciences as part of its development plan and Computer Sciences is one of two cross-institute priorities. Institutes with expertise in secure networks and systems, formal models and verification, circuit and system design, cryptography, information systems, and quantum computing have been working in this field over the past several years, earning a high level of strong global visibility. This is flanked by strong institutions in the field of correct software and hardware systems and key cross-industry expertise in areas such compiler and execution systems for secure codes, systems of systems and software development in general. In addition, Artificial Intelligence (the second focus of computer sciences at the JKU), can and will be used for security purposes. Finally, there are numerous points of contact for interdisciplinary cooperation with other academic areas, such as Physics (i.e. in the field of quantum computing), Mechatronics (i.e. in the field of sensors and high-frequency technology), Medicine (i.e. in regards to local, quality assurance applications), the Law (i.e. with regard to legal issues or aspects pertaining to data protection), and the Social Sciences (i.e. regarding the acceptance and use of corresponding systems). In addition, the JKU collaborates with local, regional companies as well as with international "global players" such as Google, Oracle, etc.

The advertised professorship position has been designed to supplement these activities and further strengthen the field of focus. In addition, a graduate school featuring “Secure Systems” as an academic area is currently being developed at the Johannes Kepler University Linz. The successful candidate is expected to play a key role in managing and strengthening the graduate school.

4.1. Research

The professorship position will focus on a specialized direction covering aspects of Secure Systems during the drafting, operational, and decommissioning procedures and beyond. The concrete focus is to consciously understand a broader interpretation. **The applicant’s outstanding academic and scientific reputation and excellence will be given a higher priority that the subject area he/she will represent.**

In addition, there will be a strong focus on the candidate’s concept outlining potential ideas to pursue and develop cooperation efforts with various institutes in the area of Computer Science and at the Faculty of Engineering & Natural Sciences as well as at LIT. In the event the candidate receives the professorship appointment, prospective applicants are requested to include a concept with the application to concretely outline specific topics, tasks and duties he/she intends to pursue as part of freely interpreting the area of secure systems

The successful candidate is expected to develop an intermediate-term research and innovation strategy to position Computer Science at the JKU to an international leading position in research and innovation. The successful candidate is expected to collaborate with Computer Science institutes and play a key role at the new graduate school for “Secure Systems”.

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

- Research skills and abilities in a current area in the field of Secure Systems.
- Doctorate degree and post-doctorate degree/habilitation (*venia docendi*), or a comparable, internationally recognized post-doctorate qualification, in the area of Secure Systems.
- Academic and/or scientific activities at universities, scientific, or industrial institutions in Austria and abroad.
- Academic/scientific reputation demonstrated through high-quality publications for internationally renowned peer-reviewed journals and at conferences on subjects with a high degree of relevance in the position’s subject area (list of publications, including 5-8 of the publications you consider most significant).
- List of academic and scientific presentations (list of invitations as an invited speaker),
- List of cooperation efforts in Austria and abroad
- Editorial and professional reviewing activities, conference organization, etc.
- International experience demonstrated by longer stays abroad in a professional capacity and/or by successfully cooperating with international universities and research facilities and incorporating international research
- Proof of having acquired corresponding research funding
- Organizing and taking part and/or managing research projects (function, project volume, contracting party and/or funding organization, duration, project manager and/or number of full-time employees when managing a project)
- Submit a research concept for future activities as a Professor for Secure Systems at the JKU (in the context of your current research).

4.2. Teaching

The JKU is committed to research-led education. Applicants for the position are expected to offer university-level courses in Computer Science in their full breadth and depth, academic lectures in his/her area of expertise, and take part in teaching the base-knowledge curriculum for Computer Sciences (particularly core subjects “Networks and Security in the Master’s degree program in Computer Science) and service courses in the academic area. As the program is international, the successful candidate will be expected to be able to hold courses in English

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

- Didactic skills and abilities
- Experience in holding university-level courses (submit a list of previously held courses, course evaluation results and, if available, any participation in university-level didactic continual education courses and/or programs)

Experience in supervising student academic work such as Master's/Diploma degree theses and doctoral dissertations (submit a list of supervised theses and dissertations)

4.3. Additional Requirements

The successful candidate must be willing to collaborate with research institutions and facilities in Austria and abroad as well as with industrial companies. The cooperation efforts should result in attracting external funding.

The successful candidate will have the ability to further develop and a research group for Secure Systems and lead the newly created Graduate School on the topic of "Secure Systems". In addition, the successful candidate will be willing to independently manage academic administration and actively take part in university committees. In addition to key professional qualifications and management experience, the successful candidate should also possess a strong social skill set.

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

- List of previous research collaborations with partners at other universities in Austria and/or abroad.
- Proof of qualifications and ability to manage an organizational unit, research projects, etc.
- Proof of qualifications and ability to lead cooperatively, in human resource development and the advancement of women as well as participation in Gender Mainstreaming projects

4.4. Activities – Significance and Time Span

Overall, the fields of research and teaching are equally important.
A balance between research, teaching and administrative tasks is approximately 40% teaching, 40% research, and 20% for the completion of administrative tasks and management responsibilities. The successful candidate is also expected to actively and independently participate in administrative committees. The weighting is taken into account when assessing the candidate's qualifications for the position.

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. For 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 2002 Austrian Universities Act, 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 70,071.40 Euros per year (last update: 2018). Payment is allocated in 14 equal amounts, whereby two parts are special allocated payments.

The position as Professor for “Secure Systems” provides a provision (on a voluntary basis) to agree on a salary over the minimum salary set by the collective agreement. Independent of the current position (current salary), the amount of the gross annual salary (collective agreement minimum salary plus voluntary additional amount) can be between €80,000 to € 100,000.

The net amount will depend on personal factors; as a guideline it can be assumed that a gross annual salary of € 80,000 will be an annual net amount of approximately € 50,000.

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 A1.

7. Application

Prospective applicants for the professorship position in Secure Systems are requested to send the following documentation in electronic form to: bewerbung@jku.at. If documents cannot be sent in electronic format, they are to be sent in quintuplet copy and should arrive at the Rector’s office no later than one week after the end of the application deadline.

7.1. General Information

- Letter of Intent (1 page)
- Tabular Curriculum Vitae
- Diplomas (Doctorate, Post-Doctorate/Habilitation)

7.2. Research

- Successful completion of a **post-doctorate degree (*venia docendi*)** or a comparable, international recognized post-doctorate qualification
- **Publication list**, including 5-8 of the publications you consider most important and significant
- List of **academic and scientific presentations/lectures** you have given as an invited speaker
- **International experience** demonstrated through longer stays abroad, cooperation efforts with international universities and research facilities and including international research in your work
- List of **acquired research funding**;
- organization of and participation and/or management of **research projects** (function, project volume, contracting party and/or funding organization, duration, project manager and/or the number of full-time employees managing the project);
- Submit a **research concept for future activities** as the Professor for Secure Systems at the JKU (including your own previous activities and work)

7.3. Teaching

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

7.4. Miscellaneous

- List of previous **research collaborations** with partners at other universities in Austria and/or abroad
- Proof of qualifications and ability to manage an organizational unit, research projects, etc.
- Proof of **qualifications and ability to lead cooperatively, in human resource development and the advancement of women** as well as participation in Gender Mainstreaming projects

8. Information

If you have any questions in regard to the job profile, please contact Univ. Prof. Dr. Armin Biere (+43 732 2468 4541, armin.biere@jku.at).