JOHANNES KEPLER
UNIVERSITÄT LINZ

PROFESSORSHIP FOR COMPLEX 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, supporting 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. The Faculty of Engineering & Natural Sciences

The Faculty of Engineering & Natural Sciences is comprised of 58 institutes in the following fields of base-knowledge research as well areas of application-oriented research:

- Computer Science
- Mechatronics
- Chemistry and Polymer Engineering
- Mathematics
- Physics

See: http://www.tn.jku.at for detailed information.

3. The Academic Area of "Computer Science"

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

- 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 "Complex Systems"

Modern knowledge and information societies must continue to consistently tackle the challenges posed by the ever increasing complexity of today's circuits and systems. Those complexities are vast, manifesting themselves in many different ways such as exploring design options, operational and interaction modalities, verifying precision, correctness and security, processing exponentially increasing amounts of data, increasing the processing and distribution speed, the corresponding control and monitoring of mechanisms, as well as the availability, reliability, and trustworthiness of these kinds of systems.

The institutes of Computer Science as well as the Faculty of Engineering & Natural Sciences at the Johannes Kepler University Linz are involved in developing corresponding systems for a number of

areas (e.g.through the institutes of Computational Perception, Pervasive Computing, Software Systems Engineering, Systems Software, Signal Processing, Networks and Security, Formal Models and Verification, Integrated Circuits, and Machine Learning). Computer Science in Linz is not only characterized by close collaboration with industrial companies that have many regional and international partners, but also a high, international level of academic achievement (frequently proven by a high number of awards and accolades as well as earning top spots in various ranking reviews). The successful candidate is expected to supplement these activities in a complementary manner and develop a focused foundation of complex systems that can synergetically be incorporated and developed into the academic area and at the faculty.

4.1. Research

The professorship position focuses on the development, design, implementation, or the theory of complex systems. Complex systems should be understood in a broad interpretation and cover aspects of both, theory and practice. The emphases may lie in methodological fundamentals as well as, among other things, specific fields of application. This includes but is not limited to:

- Engineering complex systems, such as embedded systems, parallel and distributed systems, non-linear systems, autonomous and self-organizing systems, systems of systems, networks of networks, cyber physical systems, bio-inspired systems, etc.
- Algorithmics and computer-aided methods
- Formal methods, modeling and analysis
- Design methodology and synthesis
- Simulation methods and tools

Potential application domains include complex communication systems (internet of everything, social network systems), complex electronic markets and finance systems, complex industrial cyber-physical production systems, healthcare and ageing, smart cities and environments, and complex traffic, transportation, logistical systems.

The candidate's professional background will be given a higher priority than the subject area he/she is representing. 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.

Prospective applicants are requested to include a concept with the application which precisely outlines specific topics, tasks and duties he/she intends to pursue as part of freely interpreting the area of complex systems.

The successful candidate is expected to develop an intermediate-term research and innovation strategy to support positioning Computer Science at the JKU to an international leading position in research and innovation. The Institute of Complex Systems is expected to collaborate with the entire area of Computer Science at the JKU, particularly the institutes of Integrated Circuits, Pervasive Computing, Machine Learning, Computational Perception, Computer Graphics, Signal Processing, as well as other corresponding institutes and research facilities at the JKU.

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 Complex Systems
- Doctorate degree and post-doctorate degree/habilitation (*venia docendi*), or a comparable, internationally recognized post-doctorate qualification, preferably in a field of engineering in the research field of the area mentioned above (include documentation)
- 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), academic and scientific presentations (list of invitations as an invited speaker), 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)
- A research concept for future activities as a Professor for Complex Systems in the context of research currently being conducted at the JKU.

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 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 manage the new Institute of Complex Systems, willing to independently manage academic administration, 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 desired; 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 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 “Complex 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 A 1.

7. Application

Prospective applicants for the professorship position in Complex 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

- Application form
- 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 Complex Systems 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 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. Robert Wille (+43 732 2468 4739, robert.wille@jku.at).