

PhD Position in Computer Science, Quality Assurance for Data Science and Machine Learning

Ecole/Institution/Société:

Karlstad University, Sweden / Karlstad

Discipline:

Computational Sciences

Type d'emploi::

Full-time

Date de publication:

2021-10-15

Personne à contacter:

If you wish to apply for this position, please specify that you saw it on AKATECH.tech

JOB DESCRIPTION

Karlstad University takes pride in combining active external cooperation with academic excellence. Karlstad University has around 16,000 students and a staff of over 1,300 members. Democratic principles, equality and diversity are cornerstones of the University. We value the enriching presence of diverse backgrounds and competencies among students and staff. Read more about working at Karlstad University at <https://www.kau.se/en/work-with-us>

Description

The Faculty of Health, Science and Technology invites applications for a doctoral studentship in computer science focused on quality assurance for data science and machine learning with the Software Quality and Digital Modernization (SQaD) research group at the Department of Mathematics and Computer Science, Karlstad University .

SQaD is a newly established and motivated group in the department. It aims to develop methods and techniques to continuously preserve, improve, and adapt quality attributes of long-living software systems to allow such systems to be maintained and evolve more efficiently.

The Department of Mathematics and Computer Science consists of two research subjects: Mathematics and Computer Science. It has a research and teaching staff of more than 60 persons. Computer Science, research, and education are focused on computer networking and distributed systems, computer security and privacy, and software engineering. Both research and education are conducted in close cooperation with international, national and regional partners from both academia and industry.

Duties

A doctoral student is mainly expected to engage in doctoral studies. The doctoral program consists of 240 higher education credits, including the doctoral thesis.

The position is linked to the new IMPAQCDT project, an interdisciplinary industrial collaboration project funded by the Knowledge Foundation of Sweden. IMPAQCDT aims to develop a novel approach of using machine learning with fundamental knowledge to accelerate the development of quality control methods and early assessment of the manufacturability of short DNA sequences (oligonucleotides).

The doctoral student will help establish the global aim of the IMPAQCDT project to develop models for processing and modeling chromatographic data and biosensor interaction data. The models will be used to enable accelerated analytical and preparative separations. The doctoral student will help develop mathematical models for the simulation and optimization of chromatographic purification of oligonucleotides.

In addition to the ML application in the project, the doctoral student will be responsible for designing quality assurance and testing strategies to evaluate the correctness of the implemented solutions based on automated testing. Since the project is highly tied with the drug development process, quality assurance forms a significant part. This will also include implementing continuous test generation, execution,

The candidate should have a strong background and interest in ML (including deep and reinforcement learning) and software quality assurance. It is required that the candidate has excellent programming skills and proficiency in the English language (written and spoken). Since the project is interdisciplinary, the academic groups come from the Department of Engineering & Chemical Sciences and the Department of Computer Sciences.

Hence, the doctoral student is expected to work independently but also in teams with the other groups. A majority of the work will be done in cooperation with other scientists and engineers from the industry. Therefore, it is desirable that the doctoral student can perform well in collaborative work and has experience working on projects.

The doctoral student will perform formal analysis and experimental validation of concepts in the context of next-generation pharmaceuticals. This includes bio-inspired molecules such as oligonucleotides to develop digital learning systems and quality assurance methods for separation processes to enable continuous learning and publish the output results in refereed venues such as journals, conferences, and workshops.

A doctoral student works independently and is prepared to further the work of the subject and department in addition to being prepared for an active role in teaching and administration. Such duties cannot constitute more than 20% of full-time. You are expected to actively participate in the day-to-day activities and the workplace community to promote a positive work environment and operational development.

Qualification requirements

To be eligible for doctoral studies, the applicant is required to meet the general and specific entry requirements (Higher Education Ordinance, Chap. 7, Sect. 35).

To meet the general entry requirements, the applicant must have been awarded a second-cycle qualification; satisfied the requirements for courses comprising at least 240 credits of which at least 60 credits were awarded in the second-cycle; or acquired substantially equivalent knowledge in some other way in Sweden or abroad. (Higher Education Ordinance, Chap 7, Sect. 39).

To meet the specific entry requirements, the applicant must hold a Degree of Master (60 or 120 ECTS credits) in Computer Science, hold a Degree of Master of Science in Computer Engineering, or in some other way have acquired equivalent knowledge, in the country or abroad.

Admission and assessment criteria

For admission to doctoral studies, an applicant must be judged to have the ability to pursue the program successfully (Higher Education Ordinance, Ch. 7, sect. 35). Admission is based on individual assessment of the candidates' abilities to pass the research education successfully.

To succeed as a doctoral student at Karlstad University, the candidate needs to be goal-oriented and persevering in their work. In the selection of the applicants, the following will be assessed:

- ability to independently pursue their work,
- ability to collaborate with others,
- have a professional approach, and
- analyze and work with complex issues.

After the qualification requirements, great emphasis will be placed on personal qualities and personal suitability.

Terms

Upon admission to doctoral studies, a studentship position will be offered (Higher Education Ordinance, Ch. 5, section 3). The position comprises four years of full-time studies, or five years of 80% studies and 20% teaching or other departmental duties. The position is fixed-term (one year initially, followed by a possible extension with a maximum of two years at a time). Start date by agreement.

The salary for the doctoral studentship corresponds to the standard level of salary for doctoral students at Karlstad University.

Further information

Karlstad University places great value on the enriching presence of diverse backgrounds and gender balance in the organization. We welcome applicants with different cultural backgrounds, gender identities, functional abilities, and life experiences.

Application

Your application should include well-documented qualifications. Applicants are responsible for submitting a complete application according to the advertisement before the deadline and ensuring that the documentation allows for objective and qualitative assessments. An incomplete application may jeopardise a fair assessment of qualifications.

Applications should include

- Application letter with a brief description of your academic interests and how they relate to your previous studies and future goals. (Maximum 2 pages long)
- CV, including your relevant experience and knowledge and a list of your publications (if applicable).
- Copy of the degree certificate (s) and transcripts of records from your previously attended university-level institutions. Translations into English or Swedish if the original documents are not issued in one of these languages.
- Copy of a Master's thesis (one or two years) or equivalent.
- Copies of publications or certificates of other qualifications, if applicable.
- Letter of recommendations.
- Contact information for two reference persons, of which at least one is a former or present supervisor or equivalent. We reserve the right to contact references only for shortlisted candidates.

Submit your application via the University's web-based recruitment tool and attach all the documents and publications you wish to be considered to the electronic application (do not provide links to them). A complete application should be submitted no later than the application deadline.

Documents that cannot be sent electronically, such as books and other publications, should be sent to:

Karlstads universitet

Registrar

651 88 Karlstad

State the ref.no REK2021 / 178

Karlstad University has chosen advertising channels for this recruitment and declines any contacts from advertising or recruitment agencies.

HR Excellence in Research

Karlstad University received the European Commission's HR Excellence in Research award September 2020. The award is issued to employers with a stimulating work environment and good conditions for researchers and it's continuous improvement. The award also conveys the university's commitment to fair and transparent recruitment as well as favorable professional development for researchers. Read more: kau.se/hrs4r

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