**Description of the appointment process of a tenure track position (assistant/associate/full professor)**

# Artificial intelligence for software engineering

Location:   School of Engineering Sciences,
            Software Engineering Department, Lappeenranta Campus

The rector has approved the description and initiated the appointment process on 22 May 2025.

**Applied statutes**

Universities Act (558/2009)
Government decree on universities (770/2009)

Regulations of LUT University (8 December 2022, amended 17 June 2024)

Rector's decision: Academic career tracks of the Lappeenranta-Lahti University of Technology LUT (16 January 2025)

**Additional information**

Further information on the duties of the professor is provided by Professor Kari Smolander, tel. +358 40 546 3493, kari.smolander@lut.fi.

## 1 Background

LUT University is a challenger university aiming to conduct high-quality research that is relevant to society and industries. As a compact, agile, and highly focused university, together with its partners, LUT contributes to an economically, ecologically, and socially sustainable society in its focus areas.

Clean energy, water and air are life-giving resources for which we at LUT University seek new solutions with our expertise in technology, business and social sciences. We help society and businesses in their sustainable renewal.

LUT University was established in 1969. Our entrepreneurially thinking scientific and international community comprises approximately 8500 students and 1500 experts engaged in scientific research and academic education. There are more than 100 nationalities present on our modern campuses in Lappeenranta and Lahti.

In our schools – the LUT School of Energy Systems, the LUT School of Engineering Sciences and LUT Business School – we conduct research and provide education that are internationally recognised and relevant to both society and business.

Times Higher Education (THE) has ranked LUT among the top 11 small universities across the globe in 2022. The THE university rankings present the world's top universities for interdisciplinary research.

### LUT School of Engineering Sciences (LENS)

Our mission is to train problem-solvers in engineering and contribute to a wider understanding of our world through research in technology and social and communication sciences. Our research and education are characterised by an entrepreneurial, global, and sustainable mindset. The LUT School of Engineering Sciences serves industry and society with its international expertise in separation and process technologies, computer vision and pattern recognition, applied mathematics and physics, industrial engineering and management, software engineering, and social sciences. Our strength lies in our close collaboration with companies, combined with strong theoretical and methodological expertise.

Our unit pursues a sustainable future in a world where climate change, diminishing natural resources, the availability of clean water, use of materials, and environmental issues pose significant challenges. By specialising in our strengths, we create sustainable technologies and business for the future.

### 2 Vacant professorship

The professorship of artificial intelligence for software engineering is located at the Department of Software Engineering (LUT Software Engineering) of the LUT School of Engineering Sciences (LENS) in Lappeenranta.

The focus areas of LUT Software Engineering include software development, digital transformation, and user-centred design. The department develops practices and software technologies that enhance software quality, increase software development productivity, and introduce new innovations in software. LUT Software Engineering also supports and studies sustainable business through digital transformation by applying new digital technologies and innovations. In addition, the department involves users, developers, and the public in collaborative approaches to create and update software and systems.

The department's research focuses on software and systems development challenges in an increasingly digital society. The research is often driven by empirical evidence and deals with IT artifacts produced and used by professionals, citizens, and organisations at the workplace, in society, and in various markets.

The department has a strong portfolio of national and international research projects.

The holder of the professorship is expected to work towards the department's goals, and the professorship should strengthen the department's expertise in applying intelligent technologies to software engineering challenges.

The duties of the professorship include the promotion of research in the specified area and evolution in LUT's key strategic areas in cooperation with all LUT schools.

The appointed person will have educational responsibilities in degree programmes and individual courses.

The person appointed to the professorship must present up-to-date research merits in topics related to artificial intelligence in relation to software engineering. The topics and areas of expertise of the professorship include, for example:

- using AI to improve software engineering;
- effects of AI on software security, software quality, maintenance, or other areas in software development;
- using AI in code generation, software testing, architecture design, or other software process phases;
- integrating AI and machine learning into software systems;
- explainable and responsible AI models for software development;
- using design science in creating and evaluating AI tools for software development;
- AI agents in collaborative software development;
- using AI for knowledge management in software development.

In addition, we value experience in successful project work and research collaboration with industry. Proof of and potential in high-impact international publishing and experience in the acquisition of competitive external funding are valued. The professor is also expected to be familiar with the business aspects of the research area and to participate in collaboration with businesses and/or the public sector.

Documented cross-disciplinary and international cooperation is considered an advantage. The professor must be ready to shape the research field as needed based on the demands of education and research and to collaborate across disciplines within the school and with other LUT research groups.

The duties include basic and advanced education and programme development in the key areas of software engineering. We provide international education, and master's level education is arranged in English.

The duties related to the field of research include the following:
- high-impact international research
- preparation of national and international research and education projects
- planning and implementation of bachelor's, master's, and doctoral education
- supervision of final theses and doctoral studies
- increasing awareness in a way that serves industry and the economy
- taking part in the preparation of projects in other LUT units as an expert
- general administrative work related to the university's operation

The position is at the assistant/associate/full professor levels of the tenure track and will be filled through an open call for a fixed term of four years (assistant/associate professor) or permanently (full professor). The tenure track system offers researchers a possibility to advance to a full professorship. LUT is committed to providing tenure track researchers the possibility to advance to the next level, provided they meet the requirements in the promotion reviews, are suitable for the position, and conduct research that fits LUT's strategy and operation.

More information on the LUT tenure track system:
https://www.lut.fi/en/research/research-career-lut/tenure-track

The position starts with a six-month trial period.


## 3 Qualifications

According to the administrative regulations of LUT University, adopted on 20 December 2022 and amended on 17 June 2024, an assistant/associate/full professor is required to have a doctorate, high-level scientific qualifications, experience in heading scientific research, the ability to acquire funding, the ability to provide high-level instruction based on research, the ability to supervise final theses, proof of international cooperation in the field of research in question, and when relevant to the duties of the position, practical experience in the field of the professorship.

Practical experience in the field is not a requirement in this position, but it is considered an advantage. Applicants should demonstrate in their application how they have collaborated with industry.

The applicant must have research and teaching merits, proof of effective research and the acquisition of external research funding, and international experience. The appointed applicant will be the immediate supervisor of a research group and may need to perform other demanding management duties assigned by the university. Therefore, related skills will be taken into consideration in the appointment, and attention will be paid to the applicant's merits as defined in LUT's tenure track system (Annex).

Under the universities decree (770/2009), persons in teaching and research positions at universities are required to master the language, Finnish or Swedish, in which they teach. According to the university regulations, section 28, foreign or naturalised Finnish citizens may be appointed to a teaching or research position regardless of not having demonstrated skills in Finnish and/or Swedish. Applicants for professorships may demonstrate their language skills with a language certificate accepted by the academic council and/or in an interview.

According to the university regulations, section 28, professors are required to have the language skills needed for the successful completion of their duties.

In this position, spoken and written fluency in English is required. If the appointed person is not fluent in Finnish, acquiring Finnish skills during the employment relationship is encouraged. For that purpose, LUT offers in-house Finnish language courses to staff members.


## 4 Applying for the position

### Application

The application must specify the tenure track level applied to. The deadline for applications is indicated in the vacancy announcement. The application and material for expert assessors

should primarily be submitted through the online recruitment system mentioned in the vacancy announcement.

**All application documents must be in English and in PDF format.** The application must include the following:

- a curriculum vitae (max. 10 pages)
- a copy of the applicant's doctoral diploma
- a full list of publications, including the total number of publications in the Scopus database, the total number of citations, the h-index and Scopus ID, and equivalent information from the applicant's Google Scholar profile
- a separate list of 10 publications or less selected for expert evaluation, especially from the area of artificial intelligence for software engineering
- the 10 publications or less mentioned above
- a teaching portfolio or an equivalent account of the applicant's teaching qualifications, presenting courses taught by the applicant, related feedback, the applicant's pedagogical training and teaching philosophy (max. 10 pages)
- an account of the applicant's merits and activities of significance to the vacancy (max. 3 pages)
- an account of the applicant's vision on the development of education, research, and projects in the field of the professorship at LUT University (max. 3 pages).

**Contact information**

Applicants must give the university an email address at which they can be reached. Applicants who do not wish to be contacted by email must give a postal address at which they can be reached during the appointment process. The university prefers email.

**5 Expert evaluators**

**Selection of experts**

The experts must be impartial. Before the selection of expert evaluators, the applicants must be provided the possibility to comment on their possible disqualification.

Based on the proposal of the selection committee, the dean invites at least three experts of an international level to submit a statement on the qualifications of the applicants. The university's staff members may not be invited as expert evaluators. To the extent possible, the experts should be chosen with the applicants' fields of specialisation in mind and with a view to impartiality.

Sections 27–29 of the Administrative Procedure Act (434/2003) apply to the disqualification of an expert evaluator.

**Applications forwarded to expert evaluators**

The selection committee may limit the number of applications forwarded to expert evaluators if there are four applicants or more. At least three applications must be forwarded to the experts. The applications may be limited to the most suitable candidates for the position in the view of the person making the decision. The selection committee must state the grounds for its decision. The applicants will be informed if any applications are excluded from the evaluation.

**Expert statements**

The expert evaluators must give their statements in writing within the agreed timeframe. More specific dates will be sent to the evaluators along with instructions. In their statement, the

experts must evaluate especially the scientific qualification of the applicant, and if possible, also other merits related to the professorship, and rank the applicants in order of preference.

Expert evaluators may not take part in the appointment process at a later stage.

The statement must be submitted to the university (separate instructions issued) by the deadline.

## 6 Interview and trial lecture

Applicants deemed qualified for the position by the experts will be invited to an interview. The selection committee may ask the applicants to give a public trial lecture.

## 7 Appointment

The selection committee makes an appointment proposal to the tenure track committee, which then makes its own proposal to the dean. The dean then makes a proposal to the rector on filling the position or leaving it vacant. The proposal shall be based on the merits presented by the applicants, expert statements, possible trial lectures and other related matters.

The evaluation of the applicant's qualifications considers scientific publications and other research results with scientific value, pedagogical expertise, teaching experience, teaching-related merits, a trial lecture if needed, the number of supervised dissertations, and management and leadership skills. In addition, the applicant's activity in the scientific community, success in raising research funding, scientific work abroad and international positions of trust are considered.

The rector decides either to appoint an applicant or to leave the position vacant.

The appointment proposal may be made or let lapse even if all the experts have not submitted their statements, provided that the time limit for the statements has expired, at least three experts have submitted their statements, and the impartial treatment of the applicants is not compromised by doing so.

After the rector has made the appointment decision, an employment contract is concluded with the appointed person. If no employment contract is concluded, the rector may, based on the proposal by the dean, make a new decision and appoint another applicant. The rector may also leave the position vacant. When the employment contract is concluded with the person appointed, the final decision is made known to all applicants.

**Tenure track appointment criteria**

The positions below require a doctorate in an applicable field, a research field that fits the LUT strategy (see LUT Strategy 2030), a goal-oriented plan for the work in question, teaching experience and an up-to-date account of teaching merits (teaching portfolio).

LUT has joined the international CoARA Agreement on Reforming Research Assessment (https://coara.eu/agreement/the-agreement-full-text), which emphasises qualitative assessment in recruitments and promotions to specialist positions. This is highlighted especially in the assessment of peer-reviewed scientific publications. We require high-level publications. The quality of publications is evaluated based on their content, such as novelty and impact. High-level publications have also passed a high-level peer review, where only the best manuscripts are accepted for publication.

In the tenure track criteria below, we apply the classification of the Finnish Publication Forum (JUFO) as a guiding indicator of high-level publications (ratings 2 and 3), but applicants always select their best publications for a qualitative evaluation by experts. The applicant's work will be evaluated in light of LUT's high ethical standards for research.

In international recruitments, the evaluation must consider that applicants from beyond Finland and Europe may not have been involved in Finnish or European research projects and may not have taken into consideration the Finnish Publication Forum classification. Such applicants are evaluated in terms of their success in acquiring competitive funding through their own national channels or through international ones, and in terms of impact factors of scientific journals in their own field. Only in promotion and tenure reviews are the same criteria be applied to them as to Finnish persons.

The following qualifications are to be considered in the recruitment of researchers for different levels.

Assistant professor:
  o peer-reviewed scientific publications
  o contacts with the international scientific community in the field
  o the ability to take part in applying for external funding in the research group and for fellowships of the Research Council of Finland
  o the ability to participate in teaching and final thesis supervision

Associate professor:
  o successful publication history after the doctoral defence, target of three high-level publications a year
  o proof on international cooperation
  o successful acquisition of external funding and acting as, e.g., a project manager in externally funded projects
  o applying for the Research Council of Finland's research fellow positions
  o participation in the supervision of doctoral students
  o participation in the commercialisation of research results
  o participation in teaching, the development of teaching and the supervision of final theses

Full professor:

o   proof of the successful performance of duties

1.   <u>Scientific research</u>
- publications: target of three high-level publications a year; emphasis on publications from recent years
- supervised dissertations: target of approximately one doctorate a year
- other scientific publications, such as books and chapters
- citations
- important keynote/plenary presentations and scientific awards
- editorial work in scientific journals

2.   <u>Academic teaching experience</u>
- high-quality teaching proven in different ways, such as feedback received
- up-to-date teaching portfolio
- development of teaching modules
- supervision of final theses

3.   <u>Academic leadership</u>
- establishing and heading a research group
- leadership experience and evidence of leadership and interpersonal skills
- other leadership experience and feedback received

4.   <u>Acquisition of external funding</u>
- EU, ERC, Research Council of Finland, and Business Finland

5.   <u>Work in the scientific community</u>
- international scientific societies and expert advisory duties
- duties with an impact on the scientific community

6.   <u>Societal impact</u>
- presence in societal dialogue
- corporate funding and external funding not referred to in point 4 above
- professional experience beyond universities
- innovations, patents, collaboration with companies (e.g., board memberships)
- activity in the university's stakeholder groups